

## Nez Perce Harvest Monitoring

Annual Report 2004 - 2005

March 2006

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# **NEZ PERCE HARVEST MONITORING**

## **Annual Report**

December 1, 2004 - November 30, 2005

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## EXECUTIVE SUMMARY

The primary objective of the Nez Perce Harvest Monitoring project (NPHMP) is to develop and implement a biologically sound anadromous fish harvest and harvest monitoring program. To accomplish this during 2005, we applied a step-wise harvest planning and implementation approach to specific fisheries during the reporting period, as follows:

- Developed harvest monitoring plan for Zone 6 and Snake River tributaries.
- Determined potential run sizes.
- Prepared Biological Assessments and Tribal Management Plans.
- Conducted fisheries and implement harvest monitoring methodology.
- Disseminated data.

FY 2005 harvest management and monitoring activities for the Nez Perce Tribe encompassed tribal treaty fishing activities in tributaries located in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the tribe has the reserved right to access 50% of the fish available for harvest. The tribe is responsible for developing the plans necessary to insure that proposed harvest is biologically and legally sound and that it occurs (i.e. take numbers, locations, dates and gear types) in the manner designed. The 2005 Snake River Basin treaty tributary fisheries were designed and conducted consistent with Nez Perce Tribal Code, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework (U.S. v. Oregon Parties 2005)

The final 2005 Snake River Basin Spring and Summer Chinook Sampling Plan was completed on June 1, 2005, under subcontract with Looking Glass Consulting. Input to this plan was also provided by Columbia River Inter-Tribal Fish Commission biometrician expertise and NPHMP staff. Pursuant to the sampling plan, catch data were collected to determine tribal fishing effort and fisher catch per hour or harvest per unit effort, which were applied to calculate estimated total catch or harvest for specific tributaries. Inseason monitoring of the catch composition of hatchery- vs. natural-origin and listed vs. unlisted fish (dependent upon existence and type of mark) was implemented so that numerical harvest guidelines and constraints could be measured and appropriate steps taken to modify or close individual fisheries. Notably, the specific fisheries monitored and discussed in this report did not encompass all “usual and accustomed” fishing sites reserved to the Nez Perce Tribe under the Treaty of 1855.

The large discrepancy between spring/summer preseason estimates and inseason run returns was challenging to 2005 fishery management of the Columbia and Snake River fisheries. The Technical Advisory Committee (TAC), in accordance with the U.S. v. Oregon harvest management framework, provided a 2005 pre-season forecast of 254,100 spring chinook, including Snake River summer chinook, returning to Bonneville Dam by June 15. The late April 2005 TAC update downgraded the run to 47,000-93,000 fish, based on an array of in-season predictor models. The ultimate return was 106,900 fish, only 42% of the pre-season forecast. The TAC 2005 pre-season run estimate for Snake River spring/summer chinook salmon (returning to Bonneville Dam) was 128,100 adults,

consisting of 104,700 hatchery origin and 23,400 wild adults, respectively. Actual returns were 51,400 Snake River spring/summer chinook, including 13,100 wild fish. The actual returns were 40% of the pre-season estimate.

Based on updated adult escapement estimates, Nez Perce Tribe harvest strategies incorporated Endangered Species Act assessment and planning documents, prepared under subcontract. Documents prepared for 2005 fisheries included a Biological Assessment of Impacts of the Proposed Nez Perce 2005 Fisheries in the Snake River Basin, a Tribal Resource Management Plan for the Snake River Spring/Summer Chinook ESU - Grande Ronde River Spring Chinook Salmon Fisheries, and a 2005 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin.

Fisheries were managed and implemented within the context of the applicable Biological Assessments, Tribal Resource Management Plans, 1855 Treaty reserved fishing rights and the U.S. v. Oregon framework. In-season adult escapement data were applied to adjust harvest commensurate with actual returns, following established applicable criteria for incidental and direct take of ESA listed species, hatchery adult escapement and natural adult escapement.

Based on locations monitored, the Nez Perce Tribe harvested an estimated 2,002 spring/summer chinook from the Snake River Basin, including 292 spring chinook salmon from the Clearwater subbasin, 1,587 spring and summer chinook salmon from the Salmon subbasin, 25 spring chinook from the Grande Ronde subbasin and 98 spring chinook from the Imnaha subbasin. Nez Perce fishers harvested an estimated 3,100 chinook salmon, 38 coho salmon and 370 steelhead in Zone 6 in 2005. The 2005 Nez Perce fisheries for Snake River spring/summer chinook salmon addressed ESA take criteria while providing an opportunity for substantive harvests within traditional fishing areas of the Nez Perce Tribe.

Because 2005 was the initial year of extensive harvest monitoring by the Nez Perce Tribe across such a broad landscape, a post-season review of methods and approaches will be undertaken. The intent is to apply sampling methodologies and strategies to obtain the best data feasible with the resources available. We are pursuing multi-year sliding scale approaches to Tribal Resource Management Plans in the Grande Ronde and Imnaha Subbasins for more efficient and timely processing.

Implementation of the 2005 NPHMP has demonstrated the applicability of conducting directed, managed and coordinated harvests on specific populations while assuring that hatchery and natural escapement targets are met for the rebuilding of weak stocks.



## **ACKNOWLEDGEMENTS**

Funding for this project was provided by the Bonneville Power Administration. Shared funding was provided by the US Fish and Wildlife Service Lower Snake River Compensation Program. We thank the Nez Perce Harvest Project field staff for their diligent efforts in data collection and their long hours away from home. The cooperation from Nez Perce fishers in providing harvest information is greatly appreciated. We also extend our appreciation to the Nez Perce Tribe for contract review, approval and administration. Office Specialist II Chris Nahsonhoya converted the document to pdf file format for internet posting.

## INTRODUCTION

The primary objective of the Nez Perce Harvest Monitoring project (NPHMP) is to develop and implement a biologically sound anadromous fish harvest and harvest monitoring program.

Although the Northwest Power and Conservation Council makes no claim in its 2000 Fish and Wildlife Program (Program) to have regulatory authority over the harvest of fish and wildlife, the Program does recommend the following harvest management practices (NPPC 2000):

- manage harvest to ensure risk of imprecision and error in predicted run size does not threaten survival and recovery of naturally spawning populations
- monitor in-river fisheries (escapement, catch, and expand monitoring programs to reduce critical uncertainties)
- manage for data integration and availability
- manage harvest consistent with the protection and recovery of the naturally spawning populations.

The Program also calls for subbasin plans to deal explicitly with harvest management plans. The Clearwater, Salmon, Grande Ronde, and Tucannon Subbasin Plans all contain anadromous fish harvest management objectives. The NPHMP is an essential component to help measure progress towards meeting these objectives, particularly for spring/summer chinook salmon *Oncorhynchus tshawytscha*. Zone 6 fisheries management and monitoring is important to the treatment of the target tributary populations as they migrate upstream.

FY 2005 harvest management and monitoring activities for the Nez Perce Tribe encompassed tribal treaty fishing activities in tributaries located in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the tribe has the reserved right to access 50% of the fish available for harvest. The tribe is responsible for developing the plans necessary to insure that proposed harvest is biologically and legally sound and that it occurs (i.e. take numbers, locations, dates and gear types) in the manner designed. The Snake River Basin treaty tributary fisheries are expected to be conducted consistent with Nez Perce Tribal Code, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework (U.S. v. Oregon Parties 2005). Notably, the specific fisheries discussed in this report do not include all Nez Perce “usual and accustomed” fishing sites reserved to the Nez Perce Tribe under the Treaty of 1855.

An added important value of harvest data derived from the project is the applicability to run reconstruction, including estimates of adult abundance, and importance for evaluating the effectiveness of supplementation. Both the 2005 Independent Scientific Advisory Board (ISAB) Report on Harvest Management of Columbia Basin Salmon and Steelhead and the 2003 ISAB Review of Salmon and Steelhead Supplementation identify harvest data as being among the essential core monitoring data needed to be monitored annually to assess production units (ISAB 2005, 2003)

Post-season evaluation of the harvest monitoring plan will appraise the efficacy of the sampling strategies to produce the most reliable estimates with available resources.

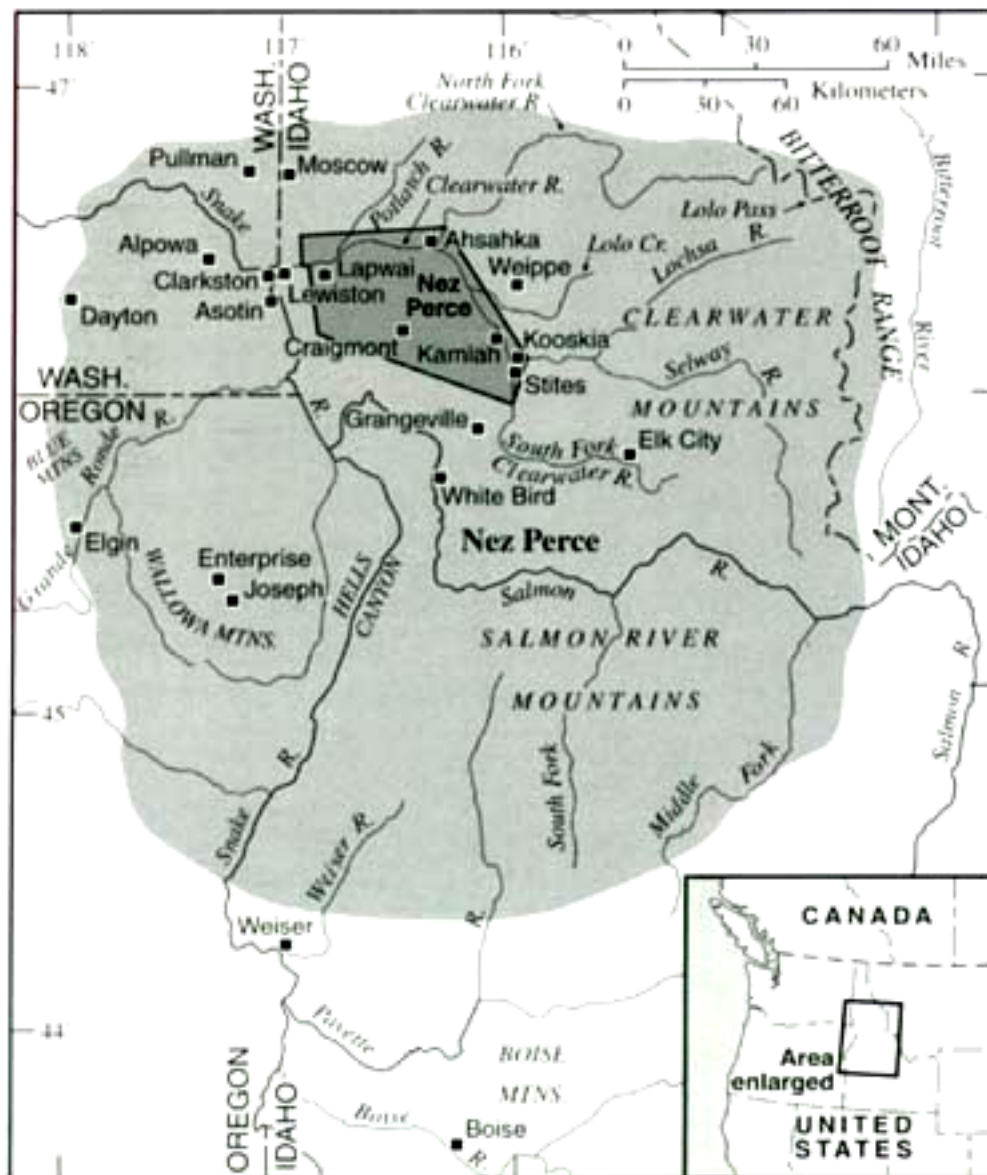
Project funding from the Bonneville Power Administration was augmented with funding from the US Fish and Wildlife Service Lower Snake River Compensation Plan (LSRCP) to accomplish harvest management and monitoring tasks.

## DESCRIPTION OF THE PROJECT AREA

The project area encompassed Zone 6 of the Lower Columbia River and six subbasins within Nez Perce 1855 Treaty Area; the mainstem Snake River, Clearwater River (ID), Salmon River (ID), Tucannon (WA), Imnaha (OR), and Grande Ronde (OR). Specific Nez Perce fisheries planned for spring/summer chinook in these areas had the potential to affect Snake River salmon and steelhead listed under the Endangered Species Act (ESA) in hatchery-influenced and/or natural production within these subbasins (Table 1) (Figure 1).

**Table 1.** Nez Perce Snake River Basin fishery locations for spring/summer chinook salmon, ESA status and presence of hatchery and/or wild ESA components.

Location	Subbasin	ESA status	Hatchery	Wild
Mainstem Snake River	Lower Snake River	threatened	X	X
North Fork Clearwater/Mainstem	Clearwater	not listed	n/a	n/a
Selway River	Clearwater	not listed	n/a	n/a
Clear Creek	Clearwater	not listed	n/a	n/a
South Fork Clearwater	Clearwater	not listed	n/a	n/a
Selway River	Clearwater	not listed	n/a	n/a
Lochsa River	Clearwater	not listed	n/a	n/a
Rapid River	Salmon	threatened		X
South Fork Salmon	Salmon	threatened	X	X
Imnaha River	Imnaha	threatened	X	X
Lookingglass Creek	Grande Ronde	threatened	X	X
Grande Ronde River	Grande Ronde	threatened	X	X
Tucannon River	Tucannon	threatened	X	X



**Figure 1.** Nez Perce Tribe Reservation and 1855 Treaty Area in Idaho, Washington and Oregon.

## METHODS

We applied a step-wise harvest planning and implementation approach for specific chinook salmon fisheries anticipated during the reporting period, as follows:

- Developed harvest monitoring plan for Zone 6 and Snake River tributaries.
- Determined potential run sizes.
- Prepared appropriate Biological Assessments and Tribal Resource Management Plans.
- Conducted fisheries and implement harvest monitoring methodology as planned.
- Disseminated data.

These component methodologies are discussed individually in the following subsections.

### **Developed Harvest Monitoring Plan for Zone 6 and Snake River Tributaries**

Monitoring of Nez Perce fisher harvest of spring, summer and fall chinook salmon and steelhead in Zone 6 of the Columbia River was accomplished by direct observation, landing interviews and by reviewing completed Ceremonial and Subsistence (C&S) Zone 6 catch reports. Two monitors were stationed at the upper and lower sections of Zone 6, focusing on Nez Perce Tribal fisher catch. Monitors contacted head fishers twice daily and collected catch data per species. Field monitors having specific knowledge of targeted fishing areas and fishers within Zone 6 rendered this approach feasible.

The Snake River Basin monitoring plan was developed via subcontract with Looking Glass Consulting, with input from Columbia River Inter-Tribal Fish Commission (CRITFC) biometrician expertise and project staff. The final 2005 Snake River Basin Spring and Summer Chinook Sampling Plan that was completed on June 1, 2005, contains a detailed description of the methodology, and is included in its entirety (Appendix A).

A basic consideration was to determine the statistical sampling design that provides the best quantitative estimate of the tribal fishery characteristics. Additionally, the ESA listing of Snake River salmon and steelhead has resulted in the Nez Perce Tribe voluntarily structuring C&S and commercial fisheries to avoid or limit catch of these protected fish.

Catch data were collected to calculate tribal fishing effort and fisher catch per hour or harvest per unit effort. Pursuant to the sampling plan, catch data were collected to determine tribal fishing effort and fisher catch per hour or harvest per unit effort, which were applied to calculate estimated total catch or harvest for specific tributaries. Monitoring of effort and catch data were stratified by week day and weekend periods. Inseason monitoring of the catch composition of hatchery- vs. natural-origin and listed vs. unlisted fish (dependent upon existence and type of mark) was implemented so that harvest guidelines and constraints could be measured and appropriate steps taken to modify or close individual fisheries.

An abundance based harvest management approach was applied whereby the tribal fisheries targeted 50% of the harvestable returns to the Snake River Basin, and reserved the right to increase or decrease harvest as returns increased or decreased from predicted values. Such adaptive in-season changes were consistent with tribal harvest management frameworks as described in the applicable documents (e.g., 2005-2007 Interim Management Agreement, Snake River Biological Assessment, Imnaha and Grande Ronde Tribal Resource Management Plans).

The monitoring structure and sampling approach developed for specific Snake River Basin locations during the 2005 spring/summer chinook fishing period are shown in Table 2. A more detailed discussion of gear types is contained in Appendix B.

**Table 2.** 2005 Nez Perce Tribe Snake River Basin spring/summer chinook salmon monitoring and sampling structure and approach per fishery location.

Location	Fishing Period hrs/day	No. of Samplers	Sampling Method	Gear Types
N. Fk./Mainstem Clearwater River	24	1	Creel Survey	all traditional gear types
Clear Creek*	24	2	Creel Survey	all traditional gear types
South Fork CR*	24	0-1	Inseason Interview	all traditional gear types
Selway River*	24	0-1	Inseason Interview	all traditional gear types
Lochsa River*	24	0-1	Inseason Interview	all traditional gear types
Rapid River	24	2	Creel Survey	all traditional gear types
South Fork Salmon River	24	2	Inseason Interview	all traditional gear types
Mainstem Snake River	24	0	Inseason Interview	dipnet, hoopnet, hook and line
Tucannon River	0	0	No season	all traditional gear types
Lookingglass Creek	24	0	Not Monitored	dipnet, gaff, long bow, spear, hook and line
Lostine River	24	2	Inseason Interview	dipnet, gaff, long bow, spear, hook and line
Imnaha River	24	2	Inseason Interview	dipnet, gaff, long bow, spear, hook and line
*These tributaries in the Clearwater River Subbasin may see 2-4 samplers depending on anticipated spring chinook returns (1 for Clear Creek, 1 for North Fork CR, 2 roving monitors for South Fork CR, Selway River, and Lochsa River).				

The three sampling methods (creel survey, direct interview survey, and inseason interview survey) applied are described in detail in Appendix A. For harvest estimates derived from intensive creel surveys, 95% confidence intervals were also calculated.

## **Determined Potential Run Sizes**

### *Bonneville Dam*

Early forecasts for the Columbia River spring/summer chinook, as measured at Bonneville Dam, were obtained through communication and coordination with the Technical Advisory Committee (TAC), including the CRITFC representatives. The TAC was originally established as part of the 1988 Columbia River Fish Management Plan (CRFMP) (U.S. v. Oregon Parties 1988). As stated in the CFRMP, pursuant to the September 1, 1983 Order of the United States District Court of Oregon in the case of U.S. v. Oregon:

"The purpose of this Agreement is to provide management guidelines, harvest allocation requirements, fish production measures, institutional arrangements, and substantive provisions that will better enable the Parties to protect, manage and enhance the fishery resources of the Columbia River system for the mutual benefit of present and future generations."

Spring chinook are defined as those salmon species which migrate over Bonneville Dam from January 1 through May 31 of each year. Summer chinook are defined as those Chinook salmon that migrate over Bonneville Dam from June 1 through July 31 of each year.<sup>1</sup>

In accordance with Schedule A: Schedule for Committee Action of the 2005/2007 Interim Management Agreement under U.S. v. Oregon, preseason run forecasts for spring/summer are reported by TAC in mid-December (Run size updates occur weekly from February through May)(U.S. v. Oregon Parties 2005). Based on technical data assembled by TAC, regulations are adopted for spring and summer chinook during the last two weeks of April and the third week in June, respectively. In-season modifications are made as needed.

The large discrepancy between preseason estimates and inseason run returns was challenging to 2005 fishery management of the Columbia River system fisheries. The TAC 2005 pre-season forecast was for 254,100 spring chinook by June 15, including Snake River summer chinook. The late April 2005 update downgraded the run to 47,000-93,000 fish, based on an assortment of in-season predictor models. The ultimate return was 106,900 fish, only 42% of the pre-season forecast.

The TAC 2005 pre-season run forecast for summer chinook was 62,400. The final count at Bonneville was 60,000 fish.

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<sup>1</sup> For 2005, the TAC included the Snake River summer chinook in the upriver spring Chinook forecasts, and extended the spring/summer Chinook count at Bonneville Dam to June 15.



### *Snake River and Tributaries*

The TAC 2005 pre-season run estimate for Snake River spring/summer chinook salmon (returning to Bonneville Dam) was 128,100 adults, consisting of 104,700 hatchery origin and 23,400 wild adults, respectively. The actual return of Snake River spring/summer chinook to Bonneville Dam was 51,400, including 13,100 wild fish. The actual returns were 40% of the pre-season estimate.

Ultimate escapement to Lower Granite Dam was 26,028 adult spring chinook and 6,736 adult summer chinook (FPC 2006). The wild component of Snake River spring/summer chinook returning to Lower Granite Dam (and Tucannon River) was 8,445 (Joint Columbia River Management Staff 2006).

The most current in-season TAC estimates for adult wild and hatchery origin returns to the Snake River and tributaries were applied and updated, in conjunction with additional data (i.e., hatchery juvenile releases, previous year's jack escapement, adult tag data, etc.) to derive expected returns to specific tributaries. These data were subsequently used to develop tributary specific harvest strategies, and to prepare Biological Assessments for incidental take of listed species and Tribal Resource Management Plans for direct take of listed species.

An in-season spring/summer chinook forecast of 23,074 adults returning to Lower Granite Dam was used for the ESA Biological Assessment for proposed Nez Perce Tribe Snake River Basin fisheries (Tables 3 and 4)(Appendix B.).

**Table 3.** 2005 in-season forecast of spring/summer chinook returning to Lower Granite Dam, Snake River.

Species	Hatchery origin (ad-clipped)	Hatchery origin (not ad-clipped)	Wild	Total
Spring/summer chinook salmon	18,574	655	3,845	23,074

**Table 4.** 2005 projected Snake River tributary returns of adult spring and summer chinook.<sup>2</sup>

Tributary	Brdstock Required	Marked	Unmarked	Ad-c	Non Ad-c		Total Listed	Total
		Unlisted Hatchery	Unlisted Hatchery	Listed Hatch	Listed Hatch	Wild/ Natural		
Snake River								
Oxbow Hatchery		600	--	0		0	0	600
Tucannon River	100 (est.)	--	--	131	0	174	305	305
Clearwater River								
Clearwater W/N		--				332	0	332
Clearwater Hatchery	2,500	3,385						3,385
Dworshak Hatchery	1,200	1,704				0	0	1,704
Kooskia Hatchery	600	941				0	0	941
Subtotal Clearwater	4,300	6,030	0	0		332	0	6,362
Salmon River								
Little Sal and Rapid River		0				85	85	85
Rapid River Hatchery	2,400	5,000				0	0	5,000
Lower Main Salmon		0				15	15	15
Middle Main Salmon		0				30	30	30
*Secesh, Johnson, EFSFSR						200	200	200
*S Fk Sal Mouth-Miners		0				42	42	42
*S Fk Miners-Poverty						242	242	242
*S Fk Sal Poverty-Weir		0				152	152	152
*S. Fk Sal River Weir	1,400	3,696			44	222	266	3,962
Middle Fork Salmon		0				738	738	738
Panther Creek								
Lemhi River		0				142	142	142
Mainstem above Lemhi								
*Pahsimeroi Hatchery	540	0	0	644	131	67	843	843
Upper Sal (Mid-E Fk)						82	82	82
East Fork Salmon River						101	101	101
East Fork Rack								
Yankee Fork						22	22	22
Valley Creek						47	47	47
Main Sal (E Fk-Sawtooth)						140	140	140
Sawtooth Hatchery Weir	600	648		73	82	223	378	1026
Grande Ronde River								
Grande Ronde Subbasin		–						0
Lookingglass Hatchery	na							0
Imnaha River								
Imnaha Subbasin	na	–		755	0	193	0	948
TOTAL	9,340	15,974	0	1,603	257	3,249	3,830	21,084
		Total Hatchery 17,577						
* Summer Chinook								

<sup>2</sup> Explanatory footnotes for Table 4 are contained in Appendix B (Biological Assessment of the Proposed Nez Perce 2005 Fisheries in the Snake River Basin.

## **Prepared Biological Assessments and Tribal Resource Management Plans**

### *Biological Assessments*

#### Columbia River Fisheries

In March, 2005, TAC completed a Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2005-2007 Non-Indian and Treaty Indian Fisheries in the Columbia River Basin (LeFleur 2005a). The Nez Perce Tribe is a member of TAC, and is also represented in TAC by staff of CRITFC. Because the structure and impact of Columbia River fisheries have direct bearing on Nez Perce Tribal fisheries both in Zone 6 and Snake River tributaries, implementation of the 2005-2007 Interim Agreement under U.S. v. Oregon is basic to the planning and conduct of Nez Perce Tribe fisheries. Snake River tributary fisheries are managed based on projected and actual returns of adult salmon after passing the downstream Columbia River fisheries.

Subsequent to the TAC Biological Assessment, NMFS (also known as NOAA Fisheries) issued a May 9, 2005 Biological Opinion on Impacts of Treaty Indian and Non-Indian Fisheries in the Columbia River Basin in Years 2005-2007, on Salmon and Steelhead Listed Under the Endangered Species Act, Conference on Lower Columbia Coho, and Magnuson-Stevens Act Essential Fish Habitat Consultation (NMFS 2005). The proposed Federal action considered in this Biological Opinion was NMFS' signing of the U.S. v. Oregon Interim Management Agreement for 2005-07 (Interim Agreement) and issuance of the associated Incidental Take Statement. The treaty Indian and non-Indian fisheries proposed by the Parties to the Agreement extend from January 1, 2005 to December 31, 2007, and encompass the Columbia River mainstem from its mouth upstream to the Wanapum Dam and to Lower Granite Dam on the Snake River, plus the Clearwater River in Idaho

The treaty Indian fisheries addressed in the Biological Opinion were those that would occur from January 1, 2005 through December 31, 2007 and would include:

- All mainstem Columbia River fisheries between Bonneville Dam and McNary Dam (commonly known as Zone 6)
- All mainstem Columbia River fisheries upstream of McNary Dam to Wanapum Dam (commonly known as the Hanford Reach Area)
- All fisheries within tributaries above Bonneville Dam except in the Snake River Basin
- All fall, winter, and early spring season steelhead fisheries in the Clearwater River.

A detailed description of treaty Indian fisheries considered in the Biological Opinion is contained in the Biological Assessment submitted by TAC (LeFleur 2005a, LeFleur 2005b).

NMFS determined that the level of take anticipated from the Interim Agreement is not likely to jeopardize the continued existence of ESA listed salmonid species or result in the destruction or adverse modification of designated critical habitat.

NMFS concluded that the following reasonable and prudent measures are necessary and appropriate to minimize the impacts from fisheries considered:

- The Washington Department of Fish and Wildlife (WDFW) shall monitor the passage of salmonids at Columbia River dams. The TAC shall provide necessary inseason estimates of run size.
- WDFW and the Oregon Department of Fish and Wildlife (ODFW) shall monitor the catch for recreational and commercial fisheries in Zones 1-6.
- The WDFW and the ODFW shall sample the recreational and commercial fisheries in Zones 1-6 for stock composition.
- The CRITFC and its member tribes shall monitor the catch in all tribal ceremonial and subsistence (C&S) fisheries and platform fisheries, and in commercial fisheries in cooperation with the monitoring efforts of the states.
- The CRITFC and its member tribes shall sample the Zone 6 C&S fishery sufficient for stock composition.
- The TAC shall account for the catch of each fishery as it occurs through the season and report to NMFS the results of these monitoring activities and, in particular, any anticipated or actual increases in the incidental harvest rates of listed species from those expected preseason.

Nondiscretionary terms and conditions identified in the Biological Opinion that are particularly germane to the Nez Perce Tribe harvest management program are:

- Monitoring of catch in the Zone 6 fisheries by CRITFC and its member tribes shall be sufficient to provide statistically valid estimates of the catch of salmon and steelhead.
- The catch monitoring program shall be stratified to include platform, hook-and-line, and gillnet fishery components.
- The CRITFC and its member tribes shall sample the stock composition of the Zone 6 C&S fisheries at a sampling rate of 20%.
- The TAC shall account for the daily catch of each fishery through the season. If it becomes apparent inseason that any of the established harvest rate limits may be exceeded due to catch or revisions in the run-size projection, then the states and tribes shall take additional management measures to reduce the anticipated catch as needed to conform to the limits.

### Snake River Basin

The May 9, 2005, Biological Assessment of Impacts of the Proposed Nez Perce 2005 Fisheries in the Snake River Basin (Snake BA) was completed by the Nez Perce Tribe for the purpose of the Northern Idaho Agency- Bureau of Indian Affairs (BIA) initiating the consultation process on listed species under the Endangered Species Act for proposed

treaty fisheries in the Snake River Basin (Appendix B). This document was prepared under subcontract by Looking Glass Consulting, and provided a description of specific Snake River Basin fisheries proposed by the Nez Perce Tribe and an evaluation of potential affects from incidental take on species listed pursuant to the Endangered Species Act as threatened or endangered, particularly Snake River spring and summer chinook. Fishery areas addressed included the Mainstem Snake River, mainstem Clearwater River, North Fork Clearwater River, South Fork Clearwater River, Clear Creek (Clearwater), Lochsa River (Clearwater), Selway River (Clearwater), Rapid River (Salmon), and the South Fork Salmon River.

The Snake BA determined that proposed fisheries assessed would result in a total harvest of 3,813 non-listed Snake River spring/summer chinook salmon, and incidental mortality of up to 24 listed fish (Tables 5).

**Table 5.** Projected 2005 Nez Perce harvest of spring/summer chinook salmon by location and incidental mortality of listed stocks.

Location	Non-Listed	Listed
Mainstem Snake River	300	0
Clearwater River	1,065	0
Salmon River		
Rapid River	1,300	10
South Fork Salmon River	1,148	14
Total	3,813	24

The assessment noted that, due to location and timing, listed sockeye salmon and fall chinook salmon would not be present. Most Nez Perce C&S fisheries in the Snake River Basin target hatchery spring/summer chinook and hatchery steelhead. Where wild spring/summer chinook and steelhead would likely be present, the following actions would limit the catch of listed species:

- Manage the Rapid River/Little Salmon River, mainstem Snake River and South Fork Salmon River spring and summer chinook fisheries to target fish of hatchery origin.
- Manage spring/chinook harvest primarily in hatchery influenced areas (sections of the Salmon River subbasin), primarily targeting fish of hatchery origin, and close fisheries long before the fish spawn.
- Conduct catch monitoring and enforcement of fisheries to ensure that tribal fishers comply with tribal regulations.

Following the submission of the Snake BA on May 26, 2005, NMFS Sustainable Fisheries Division, Northwest Region, issued on July 6, 2005, a Biological Opinion on Impacts of Treaty Indian Fisheries in the Snake River Basin in 2005, on Salmon Listed Under the Endangered Species Act and Magnuson-Stevens Act Essential Fish Habitat Consultation (NMFS 2005). NMFS determined in the Biological Opinion that the level of take anticipated with the Reasonable and Prudent Alternative was not likely to jeopardize the continued existence of listed Snake River spring/summer chinook salmon. Elements of the Reasonable and Prudent Alternative included:

- Manage the Poverty Flats and Stolle Meadows summer chinook salmon as separate stocks according to the identified harvest rate schedules.
- Limit the total allowable take of listed fish returning to the South Fork Salmon weir to 14, including an incidental take limit of 5 listed fish returning to the Poverty Flats index area (2% of run based a forecasted return of 265 listed fish).
- Close the area below Poverty Flats Bridge once the take of 14 fish is reached in Poverty Flats.
- Continue the fishing period above Poverty Flats Bridge until a total of 28 listed fish are taken in the South Fork Salmon River as a whole.

Reasonable and Prudent Measures identified were:

- The tribes and the state of Idaho shall manage their fisheries to minimize harvest impacts to listed salmonids consistent with their proposals.
- The tribes and the state of Idaho shall conduct sufficient monitoring and enforcement activities to allow the accurate and timely enumeration of observed and estimated mortalities of hatchery-origin and natural-origin fish.
- The tribes and the state of Idaho shall report the estimated mortalities of listed hatchery-origin and natural-origin fish on a weekly basis while the fisheries are open in the South Fork Salmon River and the Upper Salmon River.

#### *Tribal Resource Management Plans*

Two Tribal Resource Management Plans (TRMP's) were prepared by the Nez Perce Tribe and submitted to NMFS pursuant to ESA Tribal 4(d) rules.

#### Grande Ronde Tribal Resource Management Plan

A joint TRMP for the Grande Ronde subbasin was prepared by the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation (Appendix C). This TRMP was discussed and coordinated among the co-managers early in the pre-season. The intent of the plan was to provide a context, framework, guidelines and justification for development and implementation of annual spring chinook harvest strategies within the Grande Ronde Basin in a manner that would not jeopardize the survival and recovery of listed spring chinook in the Snake River ESU. The plan encompassed all potential tribal and sport fisheries which target listed spring chinook salmon within the Grande Ronde

River Basin. The plan described maximum allowable combined tribal and sport harvests across a range of potential run sizes by tributary and assumed a 50/50 harvest sharing within basin.

Performance indicators used to assess the status of populations and the affect of the fishery included the following fish population parameters:

- number and composition (origin and age) of chinook harvested within the basin.
- estimated fishery related incidental mortality of listed target and non-target fish in the basin.
- number and composition (origin and age) of chinook intercepted at trapping locations and estimated on the spawning grounds within the basin.
- accuracy of pre-season run projections.
- level of chinook angler effort within the basin.
- compliance with fishing regulation.

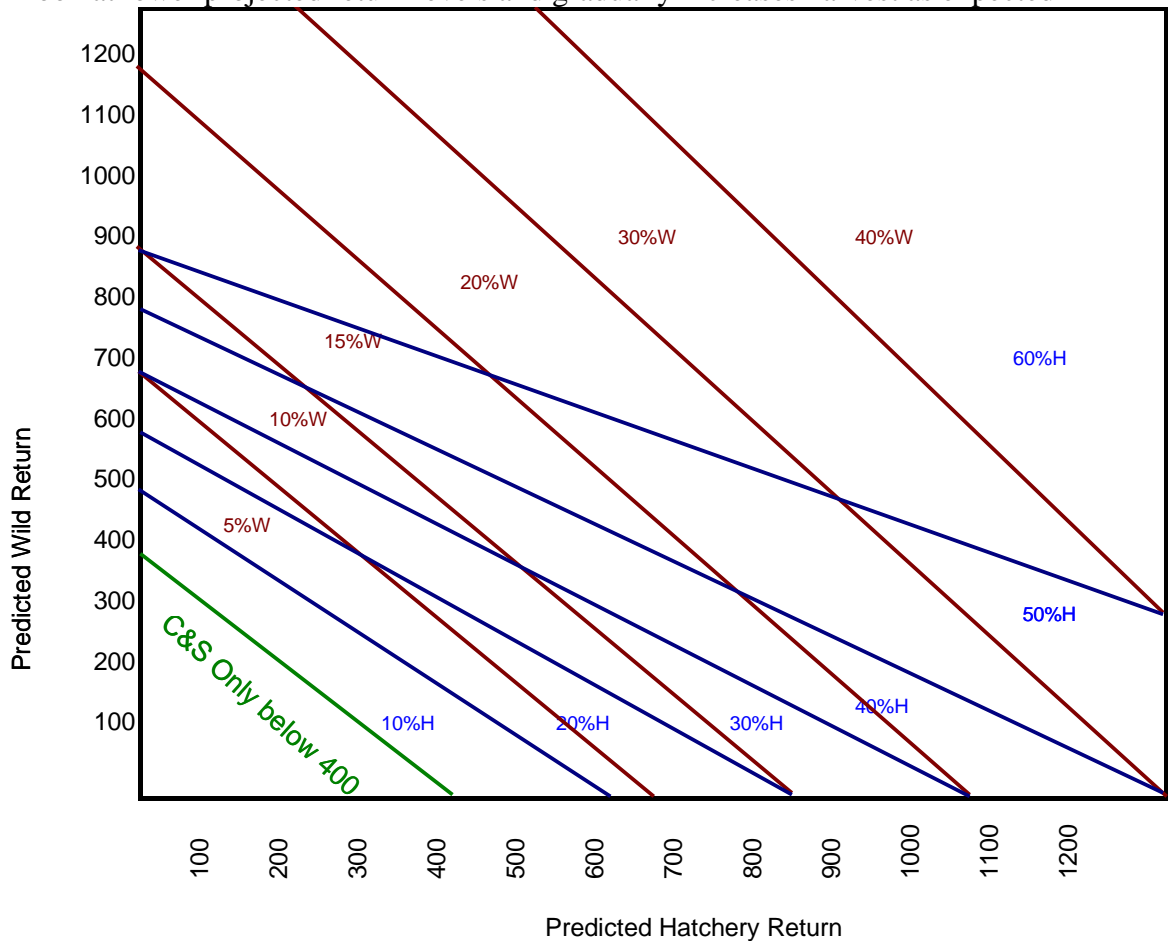
The Grande Ronde Basin once supported large runs of chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950's (USACE 1975). Natural escapement declines in the Grande Ronde Basin have paralleled those of other Snake River tributaries. A major reason for these declines has been attributed to construction of the four lower Snake River dams. In order to offset these losses, the LSRCP was authorized in 1976. LSCRCP compensation for the Grande Ronde Basin was to return 5,856 spring chinook adults to the area above the four lower Snake River dam projects (Herrig1990). This compensation goal included fish returning to hatchery racks, natural spawning areas, and fisheries. In order to meet this compensation goal, Lookingglass Hatchery (LFH) was constructed on Lookingglass Creek and became operational in 1982.

Continued declines in natural spring Chinook populations, despite LSCRCP related programs, prompted the NMFS on April 22, 1992, to list Snake River spring/summer chinook salmon as "threatened" under the federal Endangered Species Act. In response to the precipitous decline in population levels, Bonneville Power Administration (BPA) funded the initiation of captive broodstock programs for Catherine Creek, Lostine River, and upper Grande Ronde River stocks. Along with these captive broodstock programs, the Lookingglass Fish Hatchery converted to endemic broodstocks in order to better meet LSRCP mitigation goals.

In order to coordinate these endemic captive brood and conventional production programs, the Grande Ronde Spring Chinook Hatchery Management Plan (GRSCHMP) was developed and agreed upon by co-managers in 2002 (Zimmerman *et. al* 2002). The plan laid out juvenile production, adult disposition, and weir management details for the four Grande Ronde Basin tributaries involved with LFH production (Lostine River, Catherine Creek, Upper Grande Ronde River and Lookingglass Creek). Although detailed harvest specifics were not included in the GRSCHMP, harvest was identified as an objective for the program in all four tributaries. All of the captive brood hatchery production is externally marked with an adipose fin clip to allow for evaluation, weir management, and fisheries options.

As a result of the relatively large hatchery production compared to natural productivity, it is anticipated that fish of hatchery origin will dominate run composition as the hatchery program reaches production objectives. The Grande Ronde TRMP allows the use of harvest as a tool to assist in the management of hatchery and naturally produced spawner composition in tributary areas. Harvest as described in the TRMP would help; 1) manage hatchery effects on the naturally produced fish, 2) improve the chances of meeting current hatchery program conservation and recovery objectives, and 3) address harvest objectives outlined in the LSRCP.

The TRMP includes a harvest matrix that provides guidance for fisheries in the Grande Ronde Basin (Figure 2). The matrix applies generally conservative harvest rates for all chinook at lower projected return levels and gradually increases harvest as expected



**Figure 2.** Proposed harvest rates for marked (H) and unmarked (W) adult spring chinook at various projected adult run sizes into Catherine and Lookingglass Creeks and the Lostine and upper Grande Ronde Rivers.

returns increase. The harvest rate for any tribal fishery below a combined run size of 400 fish (indicated as "C and S Only" in Figure 2) would be limited to a 2% combined harvest rate. The maximum allowable harvest rates prescribed by the TRMP for natural and



hatchery components of the runs over a range of expected adult returns are outlined in Figure 2. Further discussion on this harvest matrix is contained in Appendix C.

Information on Columbia River fisheries (primarily provided through TAC) and Columbia and Snake rivers dam counts were utilized to assess impacts from mainstem fisheries on Grande Ronde natural and hatchery run components as the season progressed. In-season adjustments to Grande Ronde Basin fisheries were made, accordingly.

The TRMP includes provisions for fishery monitoring using statistical catch and handle estimates in stratified, random, roving creel surveys conducted in the areas of allowed harvest. Monitoring would provide estimates of catch and harvest for marked and unmarked chinook by tributary, estimates of tribal and sport effort by tributary and estimates of resulting spawner escapement and composition.

Based on the most current available Grande Ronde Basin adult escapement projections, the Nez Perce Tribe submitted to NMFS a June 15, 2005 Proposed Tribal Fishery on Snake River Spring/Summer Chinook in the Grande Ronde Subbasin. The fishery proposal was based on an updated Nez Perce Tribe escapement projection derived by taking an average proportion of the following two estimation methods; (1) revised PIT tag projection, and (2) a reduction of 37.4% of original return estimate. These forecast methods produced a range of potential natural-origin fish (122-215 fish) and hatchery-origin fish (483-564 fish). The tribe considered these estimate to be a reasonable indicator of the 2005 return for hatchery and harvest management purposes consistent with the TRMP. The NPT applied the average value for the ranges attributed to both components of the return, or 168 natural-origin fish (24.3% of total returns) and 524 hatchery-origin fish (75.7% of total returns), for a total revised return of 692 fish to the Lostine and Wallowa river system. Table 6 shows the pre-season and updated estimated adult returns.

**Table 6.** Revised 2005 estimated adult escapement for the Lostine and Wallowa Rivers, associated revised allocations and proposed harvest.

Location	Hatchery	Natural	TOTAL
<b>Lostine</b>			
Original projection	1,509	574	2,083
Revised projection PIT TAGS	483	122	605
Revised projection 37% of original	564	215	779
<b>Wallowa</b>			
Original projection	0	300	300
Revised projection 37% of original	0	112	112
<b>Anticipated allocation based on revised projection using PIT tags</b>			
Revised projection PIT tags	483	122	605

Fish trapped at weir	314	79	393
Broodstock requirements	105	45	150
Fish remaining after broodstock	209	34	243
Fish released above weir	34	34	68
Available for outplant	175	0	175
Natural spawners Lostine	203	77	280
Natural spawners - above and below weir and Wallowa tribs	378	189	567
Anticipated allocation based on revised projection 37% of original return estimate			
Revised projection 37% of original	564	215	779
Fish trapped at weir	367	140	506
Broodstock requirements	105	45	150
Fish remaining after broodstock	262	95	356
Fish released above weir	95	95	190
Available for outplant	167	0	166
Natural spawners Lostine	293	170	462
Natural spawners - above and below weir and Wallowa tribs	459	282	741
Revised projection average to Lostine	524	168	692
% Return	75.7%	24.3%	
Fish trapped at Weir	340	109	450
Broodstock requirements	105	45	150
Remaining fish after broodstock	235	64	300
Fish released above weir	64	64	129
Available for outplant	171	0	171
Natural spawners - above and below weir and Wallowa tribs	419	236	542
Harvest Number	20		
Number Hatchery	15		
% of Total Hatchery Run Wallowa/Lostine	2.9%	Based on projected return to tributary	
Number Natural	5		
% of Total Natural Run Wallowa/Lostine	1.7%	Based on projected return to tributary	
% of Total Run Wallowa/Lostine	2.9%		
Original Run	254,000		
Updated TAC	95,000		
% of Original	37.40%		

The implementation of the proposed fishery would result in the harvest of 15 hatchery-origin fish and 5 natural-origin fish, or a reduction of 2.9% and 1.7% to the hatchery and natural origin total run component, respectively. The updated proposal was consistent with the Nez Perce Tribe harvest goal described in the earlier TRMP document.

## Imnaha River Subbasin Tribal Resource Management Plan

On June 15, 2005, the Nez Perce Tribe submitted to NMFS's Northwest Regional Director Robert Lohn the 2005 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin (Appendix D). This constituted an interim hatchery and harvest management plan for Snake River spring/summer chinook salmon in the Imnaha River for 2005. Hatchery management activities followed the sliding scale approach resulting from U.S. v. Oregon Dispute Resolution process, incorporated in the Section 10 permit #1128, and agreed to in the 2005 Annual Operating Plan (AOP) coordination. A longer term harvest and hatchery management strategy and plan is currently under consideration by co-managers through the Northeast Oregon Hatchery planning process, U.S. v. Oregon and other forums.

Historically, the Imnaha River Subbasin supported healthy runs of spring/summer chinook salmon<sup>3</sup> - estimated at approximately 6,700 fish prior to the construction of the four Lower Snake River dams (USACE 1975). Peak escapement in recent history was estimated as ranging from 500 to 6,500 fish (Table 7). TAC has indicated that the resource managers agree the natural environment has been significantly under-seeded for the past thirty years (LeFleur 2000).

Several escapement objectives have been identified for the Imnaha River. The Columbia River Treaty Tribes' Tribal Recovery Plan (Wy-Kan-Ush-Mi Wa-Kish-Wit) defines an adult return goal of 5,740 fish, of which 3,800 are for natural production and 700 for harvest (Nez Perce Tribe et al. 1995). Goals developed by co-managers for the 1990 Imnaha Subbasin Plan (Nez Perce Tribe et al. 1990) were 5,770 total (3,820 for natural spawning, 1,240 for hatchery production, and 700 for harvest). NMFS suggested an interim abundance target for the Imnaha spawning aggregate of 2,500 fish in their Proposed Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia River (NMFS 2002).

Applying the aforementioned sliding scale and the proposed harvest strategy to updated 2005 estimated adult returns resulted in estimated fish escapement and distributions as shown in Table 8. The Imnaha TRMP provided for areas open to fishing by Nez Perce Tribal members including the mainstem Imnaha River from the Snake River confluence upstream to 60 feet below the weir. The tribal fishery would occur from June 15 to August 5, or until the target harvest number is achieved. Fishing gear permitted would include dip net, gaff, longbow, spear and hook and line. Final season structure would be

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<sup>3</sup> A detailed discussion of the biology of Imnaha River chinook is presented in the Northeast Oregon Hatchery Master Plan (Ashe et al., 2000). Chinook salmon returning to the Imnaha River fall into both the spring chinook and summer chinook migration timing categories. Fish begin entering the Imnaha River in late-April with peak entry in mid-to-late June. Most spring/summer chinook salmon are in the Imnaha River by the end of July. Presently, most salmon in the Imnaha River spawn from the Blue Hole to Crazyman Creek (RM 42.8). Some salmon have been observed spawning as far upstream as the lower reaches of the South Fork and as far downstream as Freezeout Creek (RM 29.4). Few spring/summer chinook salmon currently spawn in Big Sheep and Lick creeks. The majority of spawning in Big Sheep Creek currently occurs from RM 29.4 to RM 33.4. The majority of spawning in Lick Creek occurs in the upper 2.3 miles.

**Table 7.** Total escapement, number of broodstock collected, and number and origin of natural spawners in the Imnaha River, 1979-2004.

Year	Total Escapement	Broodstock Collected		Natural Spawners		Natural Spawners of Hatchery Origin (%)
		Natural	Hatchery	Natural	Hatchery	
1979*	192	0	0	192	0	0
1980*	125	0	0	125	0	0
1981*	307	0	0	307	0	0
1982	1,262	28	0	1,234	0	0
1983	990	64	0	926	0	0
1984	1,178	36	0	1,142	0	0
1985	1,844	115	14	1,573	142	8
1986	1,165	315	21	788	51	6
1987	644	83	22	484	55	10
1988	928	140	68	609	111	15
1989	697	105	187	297	108	27
1990	627	81	159	199	188	49
1991	959	51	262	198	448	70
1992	1,353	54	331	205	763	79
1993	1,724	58	394	430	842	66
1994	311	20	31	118	142	55
1995	432	38	30	204	160	44
1996	535	72	61	266	136	34
1997	517	23	149	129	216	63
1998	586	77	57	255	197	44
1999	1,676	22	254	287	1,113	80
2000	2,364	49	282	647	1,364	68
2001**	6,582	86	169	2,549	2,787	53
2002**	5,269	32	200	1,042	3,311	77
2003**	5,729	40	197	1,623	3,020	66
2004	2,823	55	157	384	1,037	73

Notes: Jacks are included in the estimates. Total escapement is the sum of total natural spawners estimated from redd counts and fish retained for hatchery broodstock.

\*Estimates prior to 1982 are based on redd counts above the location of the weir and not expanded for those fish spawning below the weir location.

\*\*Updated total escapement and corresponding distribution numbers by ODFW from those reported in previous TMPs. Brad Smith, District Fish Biologist.

Data sources: Parker (1997) and data from ODFW files, LaGrande office.

**Table 8.** Projected harvest and escapement distribution of Snake River spring/summer chinook salmon destined for the Imnaha River in 2005 (includes jacks and adults).

Area	Natural	Hatchery	Total
To River Mouth	427	1,725	2,152
Harvest	9	173	182
Number of Fish Post Harvest	418	1,552	1,970
To Weir (.727% of post harvest return)	304	1,129	1,433
Hatchery Broodstock	62	146	208
Outplant to Big Sheep and Lick Cr.	0	300	300
Spawning Upstream of Weir	242	661	903
Spawning Downstream of Weir (.273% of post harvest return)	114	424	538
Total Natural Spawning (mainstem and tributaries)	356	1,085	1,441

set by tribal regulations.

Areas open to fishing for non-tribal members would include the Imnaha River from its mouth upstream to Summit Creek bridge. The non-tribal fishery would occur from June 24 through June 30, unless closed earlier due to exceeding wild catch quota. Fishing gear permitted would be hook and line (statewide salmon gear restrictions apply). Non-tribal fishers would target adipose clipped (hatchery) fish, and would release unclipped fish. Bag limit would be one adipose fin-clipped chinook adult or jack per day, and two chinook per season. ODFW would close the fishery to non-tribal members if creel data analysis indicates a harvest of more than 89 marked hatchery fish, so as to reduce the potential for exceeding the take allowed in this proposal.

The Tribe and the State would each harvest 91 salmon, with all fish, jacks and adults alike, to count towards the harvest goal.

Consistent with the sliding scale management strategy resulting from U.S. v. Oregon Dispute Resolution, and described in the Section 10 Permit #1128, co-managers determined that the anticipated level of adult escapement for 2005 was sufficient to meet natural spawner and hatchery broodstock goals, and support a fishery harvest.

In addition, the planned natural spawning escapement for 2005 would be consistent with the Technical Recovery Team (TRT) preliminary draft guideline defining a viable population of 1,000 Snake River spring/summer chinook salmon in the Imnaha River, to provide for population level abundance, productivity, spatial structure, and diversity. While this guidance has not been included in the impact assessments of previous plans, it

can provide a useful measurement tool for analyzing harvest impacts on chinook salmon in years of poor or reduced abundance. The implementation of the fishery as planned would be expected to result in 441 fish above the TRT preliminary guideline of 1,000 fish spawning naturally in the Imnaha River. The maximum level of impact resulting from the proposed harvest of 182 salmon would be estimated to be 1.5% of the Snake River spring/summer chinook ESU.

The plan provided for in-season adjustments to fisheries, based on actual returns. In-season fishery monitoring and co-manager data sharing were integral components of managing the fisheries within harvest targets.

### **Conducted Fisheries and Implemented Harvest Monitoring Methodology as Planned**

Fisheries were managed and implemented within the context of the applicable Biological Assessment, Tribal Resource Management Plans, 1855 Treaty reserved fishing rights and the U.S. v. Oregon framework. In-season escapement data were applied to adjust harvest commensurate with actual returns and following established criteria for incidental and direct take of ESA listed species, hatchery escapement and natural escapement. Table 9

**Table 9.** Summary of 2005 Nez Perce Tribe harvest targets and actual harvest for Snake River spring/summer chinook salmon.

Location	Harvest Target	Estimated Actual Harvest (95% confidence interval)
Snake River Mainstem		
Oxbow Hatchery	300	0 <sup>1</sup>
Tucannon	0	0
Clearwater Subbasin		
Clearwater Hatchery	643	120(±137) <sup>2</sup>
Dworshak Hatchery	252	-- <sup>2</sup>
Kooskia Hatchery	171	172(±321) <sup>3</sup>
Salmon River Subbasin		
South Fork Salmon	1148	369 <sup>4</sup>
Rapid River	1300	1218 (±414)
Pahsimeroi	57	0 <sup>1</sup>
Sawtooth	65	0 <sup>1</sup>
Grande Ronde Subbasin		
Wallowa/Lostine	20	25
Imnaha Subbasin		
Imnaha	91	98
Total	4047	2002
<sup>1</sup> Based on post-season interviews.		
<sup>2</sup> Includes both Dworshak Hatchery and Clearwater Anadromous Hatchery stock.		
<sup>3</sup> Includes creel survey estimate plus additional 86 Kooskia stock harvest from inseason interview.		
<sup>4</sup> Summer Chinook.		

summarizes the location specific Snake River Basin harvest targets that guided the conduct of Nez Perce Tribe spring and summer chinook salmon fisheries in 2005. Harvest monitoring methodology was applied following the 2005 Snake River Basin Spring and Summer Chinook Sampling Plan (Appendix A).

### **Disseminated Data**

Harvest estimates were shared with co-managers on a weekly or bi-weekly basis to coordinate harvest activities and to implement cumulative harvest targets. Project personnel reported their catch data directly to TAC, pursuant to U.S. v. Oregon harvest sharing and inseason fishery management criteria. Post-season harvest data were provided to TAC and to pertinent co-management entities (e.g., the Dworshak National Fish Hatchery) for run reconstruction, population and hatchery performance evaluations and for input to adult escapement predictor models.

The 2005 Nez Perce Tribe Harvest Monitoring Annual Report will be posted on BPA's web site and made available for distribution in PDF file format.

## RESULTS AND DISCUSSION

Application of the step-wise methods previously described resulted in the estimated harvest of Snake River Basin spring/summer chinook salmon by the Nez Perce Tribe shown in Table 9. Based on locations monitored, the Nez Perce Tribe harvested an estimated 2,002 spring/summer chinook from the Snake River Basin, including 292 spring chinook salmon from the Clearwater subbasin, 1,587 spring and summer chinook salmon from the Salmon subbasin, 25 spring chinook from the Grande Ronde subbasin and 98 spring chinook from the Imnaha subbasin. Estimated weekly harvests are listed in Table 10.

**Table 10.** Estimated Nez Perce weekly harvest of spring/summer chinook salmon in the Snake River Basin, 2005.

Week	Period	Rapid River	Clearwater River	Clear Creek	Wallowa/Lostine	Imnaha	S Fk Salmon
1	4/10-4/16	0	0	0	0	0	0
2	4/17-4/23	0	0	0	0	0	0
3	4/24-4/30	0	0	0	0	0	0
4	5/01-5/07	0	0	0	0	0	0
5	5/08-5/14	0	23	0	0	0	0
6	5/15-5/21	0	11	11	0	0	0
7	5/22-5/28	5	7	26	0	0	0
8	5/29-6/04	79	60	24	0	0	0
9	6/05-6/11	153	0	15	0	0	0
10	6/12-6/18	386	17	10	0	0	0
11	6/19-6/25	414	2	0	0	7	0
12	6/26-7/02	109	0	0	0	43	12
13	7/03-7/09	72	0	0	16	26	105
14	7/10-7/16		0	0	9	22	91
15	7/17-7/23		0	0	0	0	79
16	7/24-7/30		0	0	0	0	35
17	7/31-8/06		0	0	0	0	43
18	8/07-8/13		0	0	0	0	4
	<b>Total</b>	<b>1218</b>	<b>120</b>	<b>86<sup>1</sup></b>	<b>25</b>	<b>98</b>	<b>369</b>

<sup>1</sup> An additional estimated 86 Kooskia stock fish were harvested based on inseason interview.

Nez Perce fishers harvested an estimated 3,100 chinook salmon, 38 coho salmon and 370 steelhead in Zone 6 in 2005 (Table 11).

As indicated in Table 12, 2005 Nez Perce fisheries for Snake River spring/summer chinook salmon addressed ESA take criteria while providing an opportunity for substantive harvests within traditional fishing areas of the Nez Perce Tribe.



**Table 11.** Estimated Nez Perce harvest of salmon and steelhead during 2005 Zone 6 fisheries.

Fishery	Chinook Salmon			Coho Salmon	Steelhead
	Hatchery	Wild	Tules		
Spring C & S	642	187		0	9
Summer Commercial	389	108		0	164
Fall Commercial	1189		585	38	197
Total	2220	295	585	38	370

**Table 12.** Location specific target take limits and actual estimated take of listed Snake River spring/summer chinook salmon by Nez Perce fishers, 2005.

Location	Listed Hatchery Origin	Listed Wild/Natural	
	Target limit	Actual Take Estimate	Target Limit Actual Take Estimate
Rapid River	na	na	10 10
Clearwater River	na	na	na na
Clear Creek	na	na	na na
Wallowa/Lostine	15	15	5 0
Imnaha River	85	98	6 6
South Fk Salmon River <sup>1</sup>	na	na	14 7

<sup>1</sup> All estimated wild/natural take occurred in Section 27.

Extraordinary challenges during the 2005 spring/summer chinook season posed by the large discrepancy in TAC pre-season estimates as compared to actual returns were effectively addressed, and harvest strategies adjusted accordingly.

Because 2005 was the initial year of extensive harvest monitoring by the Nez Perce Tribe across such a broad landscape, a post-season review of methods and approaches will be undertaken. The intent is to apply sampling methodologies and strategies to obtain the best data feasible with the resources available. We are pursuing multi-year sliding scale approaches to Tribal Resource Management Plans in the Grande Ronde and Imnaha Subbasins for more efficient and timely processing. Project personnel will also continue to engage Yakama Indian Nation and CRITFC staffs to improve coordination and efficiency of Zone 6 harvest monitoring.

Implementation of the 2005 Nez Perce Tribe Harvest Monitoring Project has demonstrated the feasibility and utility of conducting directed, managed and coordinated harvests on specific populations while assuring that hatchery and natural escapement targets are met for the rebuilding of weak stocks.

## REFERENCES

- ISAB. 2003. Independent Scientific Advisory Board Review of Salmon and Steelhead Supplementation. Document ISAB 2003-3. Portland, Oregon.
- ISAB. 2005. Independent Scientific Advisory Board Report on Harvest Management of Columbia Basin Salmon and Steelhead. Document ISAB 2005-4. Portland, Oregon.
- Ashe, B., K. Concannon, D. Johnson, R. Zollman, D. Bryson, and G. Alley. 2000. Northeast Oregon hatchery spring chinook master plan. DOE/BP-3267. Bonneville Power Administration, Portland, Oregon.
- LeFleur, C. 2000. Biological Assessment of Impacts of Proposed Fisheries in the Snake River Basin on Snake River Salmon and Steelhead Listed Under the Endangered Species Act. May 5, 2000.
- LeFleur, C. 2005a. Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2005-2007 Non-Indian and Treaty Indian Fisheries in the Columbia River Basin. March 7, 2005. 111pp.
- LeFleur, C. 2005b. Memo to Peter Dygert from Cindy LeFleur, U.S. v. Oregon TAC chair. April 27, 2005. 11 pp.
- Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, and Oregon Department of Fish and Wildlife. 1990. Imnaha River Subbasin Salmon and Steelhead Production Plan. Columbia Basin Fish and Wildlife Authority, Portland, Oregon.
- Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Indian Reservation, and the Confederation of Tribes and Bands of the Yakama Indian Nation. 1995. Anadromous Fish Restoration Plan: Wy-Kan-Ush-Mi-Wa-Kish-Wit: Spirit of the Salmon. Volumes I and II. Columbia River Inter-Tribal Fish Commission, Portland, Oregon.
- NMFS. 2002. Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia Basin, April 4, 2002.
- NMFS. 2005. Biological Opinion on Impacts of Treaty Indian and Non-Indian Fisheries in the Columbia River Basin in Years 2005-2007, on Salmon and Steelhead Listed Under the Endangered Species Act, Conference on Lower Columbia Coho, and Magnuson-Stevens Act Essential Fish Habitat Consultation. National Marine Fisheries Service (NMFS) Consultation Number: F/NWR/2005/00388.

- NPPC. 2000. Northwest Power Planning Council Columbia River Basin Fish and Wildlife Program. Council Document 2000-19.
- Parker, S. 1997. Memorandum regarding Imnaha spring chinook escapement estimates. December 19, 1997. ODFW, LaGrande, Oregon.
- U.S. v. Oregon Parties. 1988. Columbia River Fish Management Plan, as Amended by the Court October 7, 1988.
- U.S. v. Oregon Parties. 2005. 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon. Exhibit 1. 70 pp.
- USACE. 1975. US Army Corps of Engineers Lower Snake River Fish and Wildlife Compensation. Special Report, Walla Walla, Washington.
- Zimmerman, Brian, B. Ashe, and S. Patterson. 2002. Grande Ronde Spring Chinook Hatchery Management Plan. Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon.

## **APPENDIX A**

### **2005 Snake River Basin Spring and Summer Chinook Sampling Plan**

# **Nez Perce Tribe Harvest Monitoring Program**

## **-2005 Snake River Basin Spring and Summer Chinook Sampling Plan-**

### **Introduction**

The primary objective of the Harvest Management Program (HMP) is to develop and implement a biologically sound harvest monitoring program through the collection of more precise catch data that would assist in maintaining harvest strategies consistent with treaty reserved fishing rights for fishing sites on the reservation lands, ceded lands, and at all usual and accustomed areas. Harvest monitoring activities for the Nez Perce Tribe covers tribal treaty fishing activities in tributaries located in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the Tribe has the reserved right to access fully 50% of the fish available for harvest. The Tribe is responsible for developing the plans necessary to insure that proposed harvest is biologically and legally sound and that it occurs (i.e. take numbers, locations, dates and gear types) in the manner designed. The Snake River Basin treaty tributary fisheries are expected to be conducted consistent with Nez Perce Tribal Code and law, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework.

This sampling plan is supported by funding sources from the Lower Snake River Compensation Plan (LSRCP) and the Bonneville Power Administration (BPA), of which each respective contract establishes deliverables consistent to the fishing locations in Table 2. It is worth noting that the identified fisheries do not include all Nez Perce “usual and accustomed” fishing sites reserved to the NPT under the Treaty of 1855. This plan encompasses only those fisheries where level of fishing pressure, listing status, co-management priority, and/or contractual deliverables, necessitate rigorous harvest management. The results of this sampling plan will be evaluated post-season to determine the efficacy of the sampling strategies in producing precise harvest estimates. The three sampling methods as described below (creel survey, direct interview survey, and inseason interview survey) will be reviewed to see if harvest sampling data accurately characterizes the true number of chinook salmon harvested in each specific tributary.

The development of a harvest management system for the Nez Perce Tribe addresses some of the management issues as identified in Section D.5 of the 2000 Northwest Power Planning Council’s (NPPC) Fish and Wildlife Program (FWP). Specifically, NPT is incorporating management practices that include the following key objectives identified by the FWP: manage harvest to ensure risk of imprecision and error in predicted run size does not threaten survival and recovery of naturally spawning populations; monitor in-river fisheries (escapement, catch, and expand monitoring programs to reduce critical uncertainties); manage for data integration and availability; and manage harvest consistent with the protection and recovery of the naturally spawning populations.

The primary strategy for the FWP is to assure that subbasin plans are consistent with harvest management practices and increase opportunities for harvest-like those envisioned by the Nez Perce Tribe-whenever feasible. The Council’s program calls for subbasin plans to deal explicitly with harvest management plans, of which this sampling plan is considered one important subcomponent by the Nez Perce Tribe. It is expected that the harvest information derived from the implementation of this sampling plan will start to provide a baseline accounting of Nez Perce harvest in the Snake River Basin, of which can be incorporated into harvest sections in subbasin

plans. The successful implementation of this sampling plan will meet the harvest management issues of the FWP as it relates specifically to Snake River Basin spring and summer chinook management.

## Sampling Design

The Harvest Division 2005 Snake River Spring and Summer Chinook Sampling Plan is designed to cover six geographic management areas that comprise the Nez Perce Tribe Snake River Basin (SRB) treaty management area. These management areas include the mainstem Snake River, Tucannon River Subbasin, Clearwater River Subbasin, Salmon River Subbasin, Imnaha River Subbasin, and the Grande Ronde Subbasin. The fisheries occurring in these management areas have the potential to affect Snake River (SR) salmon and steelhead listed under the Endangered Species Act (ESA) in hatchery-influenced or natural production areas located in these respective subbasins (Table 1). The basic consideration undertaken by the Harvest Monitoring Program in collecting harvest data has been to determine what statistical sampling design provides the best quantitative estimate of the tribal fishery characteristics. The information to collect and sampling area to cover will include the reservation and all “usual and accustomed” fishing areas located in the above mentioned subbasins that are open to tribal fishing. The ESA listing of Snake River salmon and steelhead has resulted in the Nez Perce Tribe voluntarily structuring Ceremonial and Subsistence (C&S) and commercial fisheries to avoid or limit catch of these protected fish.

**Table 1. Management areas and listing status.**

Location	SP/SU Chinook	
	Hatchery	Wild
Mainstem Snake River	X	X
Clearwater River Subbasin		
Salmon River Subbasin		
<i>Rapid River</i>		X
<i>South Fork Salmon River</i>	X	X
Imnaha River Subbasin		
<i>Imnaha River</i>	X	X
Grande Ronde River Subbasin		
<i>Lookingglass Creek</i>	X	X
<i>Grande Ronde River</i>	X	X
Tucannon River Subbasin		
<i>Tucannon River</i>	X	X

The primary focus is on collecting catch information necessary to calculate tribal fishing effort, fisher catch per hour (FCPH) or harvest per unit effort (HPUE), which is used to estimate total catch or harvest for a particular tributary. For the above parameters, the harvest estimates will be stratified into week day and weekend fishing profiles. Inseason monitoring of the catch composition of hatchery- vs. natural-origin and listed vs. unlisted fish (dependent upon existence and type of mark) will be conducted so the harvest guidelines and constraints can be determined and appropriate steps to modify or close each given fishery can be taken when necessary. The Nez Perce Tribe propose to use an abundance based harvest management approach in that tribal fisheries will target 50% of the harvestable returns to the Snake River Basin and reserve the right

to increase or decrease harvest as returns increase or decrease from predicted values. Proposed harvest for 2005 SRB fisheries may change in-season based on updated return expectations and actual returns. Any changes in the tribal fisheries will be implemented consistent with tribal harvest management frameworks as described in the fishery proposals (Snake River biological assessment, tribal resource management plans for the Imnaha River and the Grande Ronde River Basin).

The 2005 tributary season structure and sampling strategies (as delineated in Table 2) will likely change as the original preseason Snake River Basin spring and summer chinook forecast is likely to be smaller than anticipated.

**Table 2. 2005 tributary season structure, sampling strategies, and expected gear type utilization.**

<b>Tributary</b>	<b>Fishing Period</b>	<b>No. of Samplers</b>	<b>Sampling Method</b>	<b>Gear Types</b>
North Fork Clearwater River/mainstem CR*	24	1	Creel Survey	all traditional gear types
Clear Creek*	24	1	Creel Survey	all traditional gear types
South Fork CR*	24	0(1)	Inseason Interview	all traditional gear types
Selway River*	24	0	Inseason Interview	all traditional gear types
Lochsa River*	24	0(1)	Inseason Interview	all traditional gear types
Rapid River	24	2	Creel Survey	all traditional gear types
South Fork Salmon River	24	2	Inseason Interview	all traditional gear types
Mainstem Snake River	24	0	Inseason Interview	dipnet, hoopnet, hook and line
Tucannon River	24	2	Inseason Interview	all traditional gear types
Lookingglass Creek	24	0	Inseason Interview	dipnet, gaff, long bow, spear, hook and line
Lostine River	24	2	Creel Survey	dipnet, gaff, long bow, spear, hook and line
Imnaha River	24	2	Inseason Interview	dipnet, gaff, long bow, spear, hook and line
*These tributaries may in the Clearwater River Subbasin may see 2-4 samplers depending on anticipated spring chinook returns (1 for Clear Creek, 1 for North Fork CR, 2 roving monitors for South Fork CR, Selway River, and Lochsa River).				

Below are the three components that constitute the sampling design for the 2005 Nez Perce Spring and Summer Chinook Seasons.

# 1. Sampling Area

## Sampling Strategies

The sampling design is customized to tributary listing status and attempts to fit the spatial and temporal characteristics of the drainages and tribal fishing activities to the extent practicable (Table 3). The principal limiting factor contributing towards the design and implementation of this monitoring strategy in the past has been lack of adequate funding. The 2005 spring and summer chinook seasons to take place in the Snake River Basin, as described in Table 2 and Table 3, is expected to be managed to a level desired by the Nez Perce Tribe Department of Fisheries Resources Management. For tribal harvest monitoring purposes the HMP anticipates the following sampling strategies will be implemented to cover the 2005 treaty salmon fisheries.

**Table 3. Anticipated 2005 Snake River Basin Spring and Summer Chinook sampling schedule.**

*Clearwater River Subbasin*

The fisheries to occur in the Clearwater River Subbasin will include the mainstem Clearwater River, North Fork Clearwater River, Clear Creek, Lochsa River, and Selway River. Monitoring strategy for the subbasin is to document catch and effort from tribal fishers and to get an estimate of the amount of fish harvested for each tributary for the respective seasons. The monitoring schedule is produced using a simple random number generator. For the Clearwater River tributaries, two week days are scheduled randomly along with the one weekend day to be

Management Week	Date	Rapid River	Clearwater Subbasin	South Fork Salmon River	Tucannon River	Imnaha River	Lostine River	Lookingglass Creek
1	Apr 10 - Apr 16	x						
2	Apr 17 - Apr 23	x						
3	Apr 24 - Apr 30	x	x					
4	May 1 - May 7	x	x					
5	May 8 - May 14	x	x					
6	May 15 - May 21	x	x					
7	May 22 - May 28	x	x				x	X
8	May 29 - Jun 4	x	x	x	x	x	x	X
9	Jun 5 - Jun 11	x	x	x	x	x	x	X
10	Jun 12 - Jun 18	x	x	x	x	x	x	X
11	Jun 19 - Jun 25	x	x	x	x	x	x	X
12	Jun 26 - Jul 2	x	x	x	x	x	x	X
13	Jul 3 - Jul 9	x	x	x	x	x	x	x
14	Jul 10 - Jul 16	x	x	x	x	x	x	x
15	Jul 17 - Jul 23	x	x	x	x	x	x	x
16	Jul 24 - Jul 30	x	x	x	x	x	x	x
17	Jul 31 - Aug 6		x	x	x	x		
18	Aug 7 - Aug 13		x					
19	Aug 14 - Aug 20							



monitored for each system for each week the season is open. Based on the spreadsheet output, one harvest monitor covers the North Fork of the Clearwater River for two week days and 1 weekend day, and another monitor samples Clear Creek for 2 week days and 1 weekend day, while the mainstem Clearwater River, South Fork Clearwater River, Lochsa River, and Selway River will be reported with the inseason interview process (either off-site collection or through a roving monitor process by 2 samplers). The level of sampling effort (sampling days, locations, and number of on-site or roving monitors) may increase in the Clearwater River Subbasin if other tributaries in the SRB experience reduced anticipated run sizes or actual adult returns that do not support a tribal treaty harvest.

### **North Fork Clearwater/ Clear Creek Fishery**

This system will be monitored using an on-site monitor that will sample two week days and one weekend day for the North Fork Clearwater River. The Clear Creek fishery will have one monitor sample 2 week days and 1 weekend day. Extrapolations from the data will be used to estimate the total catch for each specific tributary. If staff level permits, another monitor will be assigned to these tributaries so that additional catch information will be collected on a weekly sampling schedule similar to that of Rapid River.

### **Mainstem Clearwater River Fishery**

If staff level permits, a roving monitor will be included to collect harvest information in combination with the South Fork Clearwater River, Lochsa River, and Selway River tribal fisheries. The interview data will be recorded on a weekly basis to avoid counting the same fish again in later contacts. This information is to be used in the calculation of the harvest per unit effort (HPUE) by the total-ratio estimator. The HPUE measure will be used to estimate total catch over the specified season for the mainstem Clearwater River.

### **South Fork Clearwater River Fishery**

If staff level permits, a roving monitor will be included to collect harvest information in combination with the Mainstem Clearwater River, Lochsa River, and Selway River tribal fisheries, otherwise the information will be collected by other off-site monitors. The interview data will be recorded on a weekly basis to avoid counting the same fish again in later contacts. This information is to be used in the calculation of the harvest per unit effort (HPUE) by the total-ratio estimator. The HPUE measure will be used to estimate total catch over the specified season for the South Fork Clearwater River system.

### **Lochsa River Fishery**

If staff level permits, a roving monitor will be included to collect harvest information in combination with the Mainstem Clearwater River, South Fork Clearwater River, and Selway River tribal fisheries, otherwise the information will be collected by other off-site monitors. The interview data will be recorded on a weekly basis to avoid counting the same fish again in later contacts. This information is to be used in the calculation of the harvest per unit effort (HPUE) by the total-ratio estimator. The HPUE measure will be used to estimate total catch over the specified season for the Lochsa River.

### **Selway River Fishery**

If staff level permits, a roving monitor will be included to collect harvest information in combination with the Mainstem Clearwater River, South Fork Clearwater River, and Lochsa River tribal fisheries, otherwise the information will be collected by other off-site monitors. The interview data will be recorded on a weekly basis to avoid counting the same fish again in later contacts. This information is to be used in the calculation of the harvest per unit effort (HPUE) by the total-ratio estimator. The HPUE measure will be used to estimate total catch over the specified season for the Selway River.

### *Salmon River Subbasin*

#### **Rapid River Fishery**

The presence of wild spring/summer chinook, bull trout, and steelhead in this tributary, requires constant and accurate monitoring. The proposed sampling strategy includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. The schedule will involve the sampling of 3 week days and 2 weekend days selected randomly each week. Inseason monitoring of the catch composition of hatchery- vs. natural- origin and listed vs. unlisted fish (dependent upon existence and type of mark) for Rapid River will be conducted so the harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild impact level is not exceeded. To prolong the season to the maximum extent possible, the Nez Perce Tribe may restrict the gear type to non-lethal gear when 80% of the wild impact level has been reached.

#### **South Fork Salmon River Fishery**

The proposed sampling strategy includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. The collection of harvest data for hatchery and wild/natural summer chinook is developed to determine when the take up to the proposed harvest and incidental catch limit occurs. There is a growing familiarity by tribal members to this Nez Perce usual and accustomed fishing area, which has resulted in an increase in tribal fishing effort in recent years. The HMP is knowledgeable regarding tribal fishing patterns and the tributary characteristics. Inseason monitoring of the catch composition of hatchery- vs. natural- origin and listed vs. unlisted fish (dependent upon existence and type of mark) for South Fork Salmon River will be conducted so the harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild impact level is not exceeded. To prolong the season to the maximum extent possible, the Nez Perce Tribe may restrict the gear type to non-lethal gear when 75% of the wild impact level has been reached. This sampling strategy is sufficient when monitors are observing and interviewing tribal fishers to derive the total hatchery and wild/natural fish harvest number for the South Fork Salmon River fishery.

### *Imnaha River Subbasin*

#### **Imnaha River Fishery**

The proposed sampling strategy for the Imnaha River includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. Inseason monitoring of the catch composition of

listed hatchery- vs. listed natural- origin and adult vs. jack fish (dependent upon estimated size) for Imnaha River will be conducted so the harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The HMP is knowledgeable regarding tribal fishing patterns and the tributary characteristics. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the overall impact level on listed fish is not exceeded. To prolong the season to the maximum extent possible, the Nez Perce Tribe may restrict the gear type to non-lethal gear when 75% of the wild impact level has been reached for wild/natural fish. Low fishing effort makes the sampling strategy viable when monitors are observing and interviewing fishers to derive total hatchery-origin and natural-origin fish harvest number for this tributary.

### *Grande Ronde River Subbasin*

#### **Grande Ronde River Fishery**

The proposed sampling strategy for the Grande Ronde River system includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season at both Lookingglass Creek and Lostine River, tributaries to the Grande Ronde River. As a result of the extensive travel required and unfamiliarity of tribal fishers to these particular locations, the HMP concludes that low fishing effort, or no fishing effort, for these tributaries has occurred recent years. The last few years have seen the Lookingglass Creek fishery targeting moderate to low harvestable hatchery returns. The Nez Perce Tribe has not had a fishery targeting spring chinook returns to the Lostine River due to the depressed local fish population. The number of NPT NEOH hatchery-produced chinook is attaining levels that can start to support limited tribal harvest opportunities. The expected low fishing effort makes the sampling strategy viable when monitors are observing and interviewing fishers to derive total hatchery and wild/natural fish harvest number for these tributaries.

### *Tucannon River Subbasin*

#### **Tucannon River Fishery**

The proposed sampling strategy for the Tucannon River includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. In recent years, the Nez Perce Tribe has not had a fishery targeting spring chinook returns to the Tucannon River. The extensive travel required and unfamiliarity of tribal fishers to this particular location will likely result in low fishing effort for this return year. The HMP will need to collect information on this fishery in order to determine tribal fishing patterns or the tributary characteristics, so that future monitoring efforts can be better planned. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the overall impact level on listed fish is not exceeded. To prolong the season to the maximum extent possible, the Nez Perce Tribe may restrict the gear type to non-lethal gear when 75% of the wild impact level has been reached for wild/natural fish. Low fishing effort makes the sampling strategy viable when monitors are observing and interviewing fishers to derive total hatchery and wild/natural fish harvest number for this tributary.

## **2. Methods of Harvest Estimation and Statistical Analysis**

The monitoring surveys were developed as a simple random design by stratification of week day versus weekend fishing time preference or by constant weekly survey times (for certain tributaries the monitors will sample each day of the work week). Information to be collected in the proposed fisheries will include the following: 1) number of fishers, 2) time period engaged in fishing activity, 3) fisher catch per hour (FCPH) for fisher monitoring or harvest per unit effort (HPUE) for fisher interviews, 4) species, 5) number of hatchery or wild/natural chinook released, and 6) number of hatchery or wild/natural chinook harvested.

## **Creel Survey**

Statistical analysis of creel catch data and the calculation of harvest expansions for each tributary and strata will give a measure of variance, which could then be used to calculate the level of uncertainty for each catch estimate. Calculating the standard deviation and 95% confidence interval for each tributary and strata will produce upper and lower values to weekly catch harvest estimate. Data will be collected by direct observation on specific days selected from a seven-day timeframe (Sunday-Saturday). For those tributaries identified for this method, data will be collated and entered into a spreadsheet by hour increments contained in a 24 hour (h) sampling period that represents the 24 hour fishing period. The monitors will survey an 8-h segment from a 24-h fishing period. An 8-h segment of time will be selected randomly from three time periods (See Table 4). The time periods have expected sampling day coverage time as follows:

**Table 4. Daily sampling segments.**

<b>Time Period</b>	<b>Expected Coverage Time</b>
1:00 am – 9:00 am	33%
9:00 am – 5:00 pm	33%
5:00 pm – 1:00 am	33%

The sampling days will include three days during the week and two weekend days for each seven-day sampling week. The Table 5 demonstrates that the creel survey sample schedule will equate to sampling rates of 20% coverage for the available fishing hours during a week (three days) and 33% of available fishing hours during a weekend (2 days). There are a total of 21 8-h segments (6 weekend and 15 week time segments) in a standard sampling week. The actual sampling rates for each tributary that will use the creel survey sampling method may vary. The final creel survey sampling schedule will be determined based upon the available number of samplers and the actual chinook salmon returns (e.g., North Fork Clearwater River and Clear Creek schedule is set for 1 weekend day and 2 week days, while Rapid River will be monitored on 2 weekend days and 3 week days).

**Table 5. Creel Survey sampling rate for week and weekend strata.**

<b>Strata</b>	<b>No. of Days</b>	<b>Available Daily 8-h Segments</b>	<b>Total 8-h Segments</b>	<b>No. of Sample Segments</b>	<b>Total No. of Sample Hours</b>	<b>Total Available Hours</b>	<b>Sample Rate</b>
Weekend Fishing Days	2	3	6	2	16	48	33%
Week Fishing Days	5	3	15	3	24	120	20%

The Harvest Monitoring Program is developing this stratified random sampling strategy as an effort to define at what times of the fishing season (categorized into week and weekend strata) there is high and low fishing intensity.

From the sampling raw data, an expansion will be calculated by the following equation (Rishi Sharma, personal communication, March 17, 2005):

$$\hat{C}_{s,t} = \hat{N}_{s,t} \times \frac{\sum_{i=1}^x \frac{C_{i,a}}{n_{obs}}}{x} \times H_f \times \left[ \frac{\hat{N}_{s,t}}{\hat{N}_{s,f}} \right]$$

or ,

$$\hat{C}_{s,t} = \hat{N}_{s,t} \times FCPH \times H_f \times A_f$$

Where  $\hat{C}$  is the catch in area ( $S$ ) over time ( $t$ ),

$N(\text{hat})$  = estimate of the number of fishers in area ( $s$ ), and time ( $t$ ),

$C$  = the catch observed in area  $a$  ( $a$  subset of area  $S$ ) and time  $i$  (for the observed number of fishers,  $n$ ) over the number of  $i$ 's ( $x$ ) sampled (average catch per hour),

$FCPH$  = the average observed fisher catch per hour,

$H$  = the number of hours the fishery is open, and

$A$  = the proportion of the fishers sampled (i.e., sampling fraction that produces a sampling rate of fishers sampled in areas ( $s$ ) and time ( $t$ ), by the total fishers in area during the fishery sampling period).

Mean fisher catch per hour (FCPH) expanded by fisher effort data (number of hours the fishery is open and the sampling proportion) will be used to derive weekday and weekend estimated catch. The monitors will determine the number of fishers in the sample by doing an instantaneous count of both the fishers engaged in fishing (a subset of total fishers) and the total fishers on the river, at the start and end of each 8-h sampling shift. Weekday and weekend catch will be summed to give total weekly catch and the weekly fisher catch per hour (computed by dividing weekly catch by weekly fisher effort). The results generated from monitoring are to be used to evaluate the statistical effectiveness of the sampling design.

If  $FCPH \sim Normal(\mu(1), \sigma(1)^2)$ , and there is no variance associated with  $H$  (hours in the fishery),  $N$  (total number of fishers) then the variance of the catch estimate is:

$$Var(\hat{C}_{s,t}) = (\mu_1^2 \sigma_2^2 + \mu_2^2 \sigma_1^2 - \sigma_1^2 \sigma_2^2) \times H^2 \times N^2$$

The task is to estimate confidence intervals (CI), precision (indicator of data quality), and variance (indicator of monitoring effort) in catch for the SRB tributary fisheries that use data produced from the creel survey collection method. Random stratified observations based on fishery effort will be used to produce the following:

- a. Weekly catch expansions.

### *Analysis Method*

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures for each respective fishery that uses the creel survey method will be calculated:

- b. The sample mean is sum of the catch observed in a specific area and time (for the observed number of fishers) over the number of fishers sampled (average catch per hour) for the number of hours the fishery is opened.
- c. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- d. The range, sample variance ( $s^2$ ), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by  $Var(\hat{C})$  in the equation (no variance associated with the estimate of the number of fishers in specified area and time, the number of hours the fishery is open, and the proportion of the fishers sampled).

### **Inseason Interview Survey**

Data will be collected by direct observation and through interviews for fisheries that require extensive travel time to cover and contain listed chinook salmon (South Fork Salmon River and Imnaha River). For tributaries identified for this method, data will be collected on a daily basis for the duration of the monitoring schedule (8 days on/6 days off). The monitors will survey an 8-h segment for each sampling week, to survey each 24 h fishing period. The sampling period is designed to directly observe the numbers of fishers in the area, and to interview the individual fishers for times in the fishing period that observed or interviewed fish data was not collected. This is to off-set the potential for not directly observing specific fishers between sampling periods and to collect harvest data that might have accrued during the time sampling was not conducted.

From the interview data, the calculation of HPUE will be based on the total-ratio estimator as described by the following steps:

Total-ratio estimator:  $HPUE = h/e$ ,

$$\hat{R}_2 = \frac{\sum_{i=1}^n h_i}{\sum_{i=1}^n e_i}$$

$$\sum_{i=1}^n h_i = \text{sum fish harvested per fisher } (h_i) \text{ over all fishers interviewed } (n).$$

$$\sum_{i=1}^n e_i = \text{sum hours fished per fisher } (e_i) \text{ over all fishers interviewed } (n).$$

Catch is generated for the unsampled fishers using the equation below:

$$\hat{C}_{s,t} = \hat{R}_2 \times H_f \times \hat{N}_{s,t}$$

Where  $\hat{C}$  is the catch in area ( $S$ ) over time ( $t$ ),

$R$  = the catch efficiency per fisher hour

$H$  = the number of hours fishery was open in area  $S$

$N$  = the number of unsampled fishers in area ( $S$ ) at time ( $t$ )

Variance for the catch is dependent on the variance of  $R_2$ . So, if  $R_2$  has mean ( $\mu$ ) and variance ( $\sigma^2$ ) then,

$$Var(\hat{C}_{s,t}) = \sigma^2 \times H_f^2 \times N_{s,f}^2$$

$\mu$  = population mean

$\sigma$  = variance of the population

The task is to estimate confidence intervals (CI), precision (indicator of data quality), and variance (indicator of monitoring effort) in catch for the SRB tributary fisheries that use data produced from the inseason interview collection method. The purpose is to determine the following fishery characteristic:

- e. Weekly catch expansions.

*Analysis Method*

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures will be calculated for the harvest estimates produced from the inseason interview method:

- f. The sample mean is sum of the catch efficiency rate observed in a specific area and time (for the observed number of fishers) multiplied by the number of unsampled fishers for the number hours the fishery is opened.
- g. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- h. The range, sample variance ( $s^2$ ), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by  $Var(\hat{C}_{S,t})$  in the equation (variance for the catch is dependent on the variance of  $R$  multiplied by the number of hours the fishery is open and the number of unsampled fishers).

An assumption is that the majority of fishers will be contacted and a ratio estimate of total harvest over the duration of the fishing season can be produced. The differences in daily fishing effort acts as a self-weighting factor for harvest estimates produced by this method. The harvest information contributed by individual fisher that is used in the total-ratio estimator are weighted by the amount of fishing effort expended, and therefore is the appropriate estimator to use for calculation of total harvest when completed trip data is used.

### **Post-Season Interview Survey**

If necessary the Harvest Division will institute a post-season interview survey method to derive a harvest estimate for areas where inseason interviews for certain fishing locations were not conducted or had incomplete harvest information. The post-season interview method will utilize fishing profiles (low, medium, and high) to estimate the level of harvest for a particular tributary. The fishing profiles will be developed using existing harvest data for that particular tributary (when incomplete information exists) or catch information that has been collected at other Snake River Basin tributary fisheries that the Harvest Division anticipates to have similar fishing characteristics (numbers of fishers, fishing effort, and fish escapement).

The harvest monitors will routinely conduct interviews with the tribal fishers and submit the data collection sheets for tabulation in the spreadsheet on a weekly basis. This can be facilitated through direct contact with tribal fishers by harvest monitors assigned to a specific tributary for inseason interview duties. The interview survey data will be documented on a weekly basis to avoid counting the same fish over in subsequent interviews with tribal fishers. From the sampling data an expansion will be calculated by the following equation (Rishi Sharma, personal communication, March 24, 2004):



$$\hat{C}_s = \frac{\sum C_{i,s}}{n} \times \hat{N}_s$$

or ,

$$\hat{C}_s = CPH \times \hat{N}_s$$

Where  $\hat{C}$  is the estimate of catch in area ( $S$ ),

$n$  = the number of fishers sampled by profile- high, medium, and low fishing profile,

$C$  = the catch observed from fisher  $i$  sampled by fishing profile,

$CPH$  = the average observed catch per hour, and

$N_s$  = estimate of the number of fishers by strata ( $s$ ) – high, medium, and low fishing profile.

Mean catch per hour (CPH) expanded by fisher effort data (number of fishers in area sampled by high, medium, and low fishing profiles) will be used to derive weekday and weekend estimated catch. The expansion will produce a harvest estimate for that specific fishing location and season duration. The results generated from monitoring are to be used to evaluate the statistical effectiveness of the sampling design.

If  $CPH \sim Normal(\mu(1), \sigma(1)^2)$  , and there is no variance associated with  $N$ , then the variance of the catch estimate is:

$$Var(\hat{C}_s) = Var(CPH) \times \left[ \frac{1}{\left( \frac{n}{\hat{N}_s} \right)} \right]^2 ,$$

$$\sqrt{Var(\hat{C}_s)} = S.E.(\hat{C}_s) , \text{ and}$$

$$95\% \text{ Confidence Interval} = \hat{C}_s \pm 1.96 (S.E.(\hat{C}_s)).$$

### *Analysis Method*

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures will be calculated for the harvest estimates produced from the inseason interview method:

- i. The sample mean is sum of the catch efficiency rate observed in a specific area and time (for the observed number of fishers) multiplied by the number of unsampled fishers for the number hours the fishery is opened.
- j. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- k. The range, sample variance ( $s^2$ ), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by  $Var(\hat{C}_S)$  in the equation.

An assumption is that the majority of fishers will be contacted and that the mean catch per fisher hour (CPH) value can be determined for the low, medium, and high fishing profiles. The differences in weekly fishing effort acts as a self-weighting factor for harvest estimates produced by this method. The harvest information contributed by individual fisher that is used in this harvest estimator are weighted by the amount of fishing effort expended, and therefore is the appropriate estimator to use for calculation of total harvest when collecting harvest information for specific tributaries where creel survey or inseason interview surveys were not conducted, or conducted to the limited extent.

### **Sampling Objective**

The management objective of the sampling design is to estimate tribal catch or harvest with a coefficient of variation value of 0.3 for 95% of the sampling time. This CV value assures that we are adequately sampling the fishery. Certain critical ESA stocks of spring and summer chinook in the SRB may require higher sampling effort to obtain this value. The harvest of these critical stocks will be determined using the inseason interview as facilitated by on-site harvest monitors (as described above). The overall goal is to create a complementary harvest monitoring system that increases the precision and accuracy of annual tribal catch or harvest estimates and to allow the evaluation of sampling plan effectiveness.

### **3. Reporting**

The NPT recognizes that significant interaction and cooperation with other tribal, state, and federal fish managers will need to occur in order fulfill co-management obligations for harvest management.

Inseason checks will be used to evaluate the number of spring and summer chinook returns over the Lower Granite Dam to each tributary of monitoring focus. As the actual numbers of spring

and summer chinook increase or decrease from preseason projections, Nez Perce Tribe may increase or decrease harvest goals accordingly. This inseason monitoring is facilitated through the collection and sharing of fishery information by the respective fishery managers, which includes the following; fish returning and collected at hatchery facilities, harvest updates, and through updated run predictions based on the PIT tag detections at Lower Granite dam. Additionally, the NPT may modify this sampling plan inseason if chinook salmon runize projections to the SRB indicate that the spring and summer Chinook salmon distribution and abundance will differ significantly than anticipated. Modifications will be in the form of re-directing seasonal staff to areas of anticipated higher fish returns and fishing intensity, and not of utilizing different harvest estimation methods.

The Nez Perce Tribe Harvest Division will provide to the co-managers weekly harvest updates for the treaty fisheries covered under this sampling plan. A final report for the 2005 Nez Perce Tribe spring and summer chinook season will be provided to the co-managers.

## REFERENCES

- Brown, M.L., and D.J. Austen. 1996. Data management and statistical techniques. Pages 17-62 *in* B.R. Murphy and D.W. Willis, editors. Fisheries Techniques, 2<sup>nd</sup> edition. American Fisheries Society, Bethesda, Maryland.
- Malvestuto, S.P. 1996. Sampling the recreational creel. Pages 591-623 *in* B.R. Murphy and D.W. Willis, editors. Fisheries Techniques, 2<sup>nd</sup> edition. American Fisheries Society, Bethesda, Maryland.

## **APPENDIX B**

### **Biological Assessment of Impacts of the Proposed Nez Perce 2005 Fisheries in the Snake River Basin**

**Biological Assessment of Impacts of the Proposed  
Nez Perce 2005 Fisheries in the Snake River Basin**

*Bureau of Indian Affairs  
-Northern Idaho Agency-*

**May 31, 2005**

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# **Biological Assessment of Impacts of the Proposed Nez Perce 2005 Fisheries in the Snake River Basin**

## **Introduction**

The National Marine Fisheries Service (NMFS) listed Snake River sockeye as an endangered species in December 1991, listed Snake River wild spring/summer chinook and Snake River wild fall chinook as threatened species in May 1992, and listed Snake River wild steelhead as threatened species on August 18, 1997. The natural population of Snake River spring/summer chinook, as listed under the Endangered Species Act (ESA), occurs in the mainstem Snake River and in the Tucannon, Grande Ronde, Imnaha, and Salmon river subbasins. Clearwater Basin spring/summer chinook stocks are excepted from the listing because the original population was extirpated early in the century due to construction of Lewiston Dam and current natural populations are the result of hatchery reintroduction from outside stocks. The natural population of Snake River fall chinook, as listed under the ESA, occurs in the mainstem Snake River and in the Tucannon, Palouse, Grande Ronde, Imnaha, Salmon, and Clearwater river subbasins. Snake River steelhead were listed throughout the Snake River Basin.

This biological assessment provides a description and evaluation of the fisheries proposed by the Nez Perce Tribe on Snake River Basin salmon and steelhead listed under the ESA. The document has been prepared by the Nez Perce Tribe for the purpose of the Northern Idaho Agency- Bureau of Indian Affairs (BIA) initiating the consultation process on listed species under the Endangered Species Act for proposed treaty fisheries in the Snake River Basin. Therefore, this Biological Assessment addresses proposed 2005 Snake River Basin fisheries not covered in previous documents. Ceremonial and subsistence steelhead fisheries in the Snake River Basin authorized by the Nez Perce Tribe are covered in the Biological Assessment of proposed 2005 Treaty Indian and Non-Indian Fall Season fisheries in the Columbia River Basin document. The BIA makes no judgment as to the merit of any of the fisheries (i.e. location, harvest levels, etc.). Policy issues involving these proposed fisheries can be addressed in appropriate *U.S. v. Oregon* fora. The following federal-tribal relationships provide a basis for ESA Section 7 consultation on tribal fisheries:

- the United States' Treaty of 1855 in which the United States guaranteed the tribe's fishing rights,
- the BIA's role as trustee of a property right, which is the treaty fishing right reserved in the treaty with the United States, and
- the presence of the United States as plaintiff in the *U.S. v. Oregon* in an action to enforce the treaty fishing right.

The Nez Perce Tribe requests that the BIA forward this Biological Assessment to the National Marine Fisheries Service which has statutory authority to review biological assessments and

render a biological opinion for all anadromous fish species listed under the ESA.

For 2005 mainstem Columbia River fisheries, a multi-year interim Management Agreement has been established which dictates harvest rates for non-Indian and treaty Indian fisheries for 2005 through 2007, based on aggregate run sizes, with specific triggers for listed Snake River and Upper Columbia River spring chinook. This proposal for the Nez Perce Tribe's 2005 Snake River Basin fisheries will be managed in accordance with the interim agreement.

In previous years, to facilitate the consultation processes of federal actions on listed species, the NMFS requested that the *U.S. v. Oregon* Technical Advisory Committee (TAC) of the Columbia River Fish Management Plan (CRFMP) (Parties to *U.S. v. Oregon* 1987) develop the technical information (e.g., harvest proposals, run size estimates, stock composition, etc.) to complete a Biological Assessment of the fishery impacts of proposed fisheries in the Snake River Basin. TAC will continue to develop the harvest tables as facilitated in previous biological assessments, and it will be the responsibilities of the parties to develop and submit separate biological assessments/tribal management plans for their respective fisheries.

For this document, a wild fish is considered to be a fish which was hatched in the wild and not destined to return to a hatchery. Wild fish do not include hatchery strays, hatchery fish with partial clips (e.g., Rapid River), or hatchery fish released off-station. For this document, "listed species" refers to Snake River sockeye, Snake River wild spring/summer and fall chinook, and Snake River wild steelhead as described by geographic location above. In addition, some hatchery produced spring/summer chinook are also considered listed species. The management (marking) strategies for listed fish produced in a hatchery vary between the states.

Hatchery programs for listed chinook in Idaho (McCall, Pahsimeroi and Sawtooth fish hatcheries) have operated to maintain two groups of hatchery-origin fish which are differentially marked to be visually distinguishable and identify their listing status. The marks are also used to allow fisheries on hatchery produced fish. Fish resulting from crosses of known hatchery-origin parents only (Idaho's "marked reserve" group) are unlisted and are adipose clipped, while fish resulting from crosses of hatchery-origin and natural-origin parents (Idaho's "supplementation" group) are listed and are not adipose clipped. The supplementation group includes fish resulting from crossing of two listed fish or one listed and one unlisted fish. Although they are not adipose clipped, they do have other marks (e.g. coded wire tag only or ventral fin clips), that identify them as being produced in a hatchery.

The programs producing listed chinook in Washington (Tucannon) and Oregon (Imnaha and Grande Ronde) utilize a different management strategy. These programs attempt to insure a maximization of spawners from wild origin, but fish from hatchery by hatchery crosses are not marked to be visually differentiated from fish of hatchery by wild or wild by wild crosses. Rather, fish are simply identified as being of hatchery origin by the presence of an adipose clip. In the Grande Ronde (with the exception of Rapid River stock released at Lookingglass Hatchery) and Imnaha, hatchery fish are also listed fish. The Tucannon hatchery programs



produce listed chinook in southeast Washington. The WDFW discontinued marking hatchery-produced fish with an adipose fin clip. Starting with the 2000 Brood Year, the supplementation fish are identified as being of hatchery origin by the presence of a CWT and a red visible implant (VI) elastomer tag behind the right eye.

The following section describes reservation lands, our ceded area, and usual and accustomed places, that the Tribe is intent on having Ceremonial and Subsistence (C&S) and commercial fisheries, consistent with this management framework and pursuant to our jurisdictional authority under the Treaty of 1855. The aforementioned fisheries in this assessment fall under one of these jurisdictional area delineations. Additionally, the Tribe has considerable interest in expanding tribal fisheries to usual and accustomed fishing areas not previously fished because of diminished returns. Due to listing status of spring and summer chinook salmon in the Imnaha River, Grande Ronde River, and Tucannon River subbasins, the Tribe is developing fishery proposals under the ESA Tribal 4(d) Rules for tributaries that have 'direct take' implications. Policy issues involving these proposed fisheries can be addressed in appropriate *U.S. v. Oregon* fora. The Nez Perce Tribe's proposal for the 2005 Snake River Basin fisheries, as contained in this biological assessment, are very similar to those submitted in previous years.

### ***U.S. v. Oregon* Harvest Management Framework**

Within the 761,000 acre Nez Perce Reservation, the Tribe has exclusive jurisdiction to regulate its own tribal members and any other Indian authorized to fish by tribal authority. As a general rule, state jurisdiction within Indian Country is preempted both by federal protection of tribal self-government and by federal treaties and statutes on other subjects relating to Indians, tribes, their property and federal programs.

The Nez Perce Tribe has what might be deemed near exclusive jurisdiction to regulate tribal members exercising treaty reserved fishing rights at all off reservation, usual and accustomed locations in the Snake River Basin. The Nez Perce Tribe has usual and accustomed fishing locations not only within that portion of the 13,204,000 acres that have been found to been exclusively used and occupied by the Tribe including the major portions of the Snake, Salmon and Clearwater Rivers and their drainages situated in three states-Washington, Oregon, and Idaho, but there are many Nez Perce usual and accustomed fishing sites located beyond that aboriginal territory as well. The best example of that is represented by the rights the Nez Perce Tribe to fish pursuant to treaty rights at usual and accustomed fishing areas in the lower Columbia River as determined by the *U.S. v. Oregon* litigation.

Salmon and other migratory fish species are an invaluable food resource and an integral part of the Nez Perce Tribe's culture. Anadromous fish have always made up the bulk of the Nez Perce tribal diet and this dependence on salmon was recognized in the treaties made with the Tribe and the United States. In 1855, representatives of the United States government negotiated a treaty with the Nez Perce in which the Tribe expressly reserved:

The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privileges of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land (12 Stats., 957-Article 3). Treaty of 1855.

Thus, the legal, historic, economic, social, cultural, and religious significance of the fish to the Nez Perce Tribe continues to this day, which makes the decline of fish populations in the Snake River Basin a substantial detrimental impact to the Nez Perce way of life. These treaty fishing rights were reserved in the Treaty of 1855, they were not granted. A “reasonable and necessary” conservation principle must be applied when agencies consider actions that result in restrictions on the use or development of tribal fish resource, the exercise of tribal fishing rights or the conservation burden placed on Nez Perce fishers. Consistent with court rulings regarding the exercise of treaty fishing rights, restrictions on tribal fisheries are applied only when:

- a. they are reasonable and necessary for species preservation,
- b. they are the least restrictive available to achieve the required conservation purpose,
- c. they do not discriminate against Indian activities, either on their face or as applied,
- d. their purpose cannot be achieved solely through the regulation of non-Indian activity, and,
- e. voluntary tribal conservation measures are not adequate to achieve the conservation purpose.

In addition, a district court opinion in Idaho has established that the state must cooperate with the tribe in determining appropriate fish management programs and must afford the tribe reasonable, meaningful, and adequate opportunity to participate in the regulation making process.

To be consistent with the Treaty of 1855 and *U.S. v. Oregon* case law principles, the federal government must consider treaty Indian fisheries before all other non-Indian sources of mortality have been approved in a biological opinion. For the purpose of considering tribal fisheries in the context of biological opinion and conservation principles, the salmon life cycle should be viewed as beginning with the tribal fishery.

Comparison of Nez Perce treaty fishery harvest against all other non-Indian mortalities across the various mortality sectors (the total non-Indian harvest) produces a different view than the present evaluation of fishery harvest alone. The tribe’s harvest levels are substantially lower in comparison to the combined impacts in the non-Indian hydrosystem, habitat, hatchery, and ocean harvest mortality sectors. The purpose of this biological assessment is not to provide the calculation of allocation across the various mortality sectors. However, the federal government must provide such an analysis before attempting to impose a conservation restriction (if a “jeopardy” conclusion is determined) in order to be consistent with the *U.S. v. Oregon* case law and the Secretarial Order.

The Nez Perce Tribe requests that NOAA Fisheries evaluate the State of Idaho 2005 South Fork Salmon River and Rapid River/Little Salmon River recreational fisheries (Permit #1481) consistent with court rulings regarding the exercise of treaty fishing rights and the application of conservation measures. Additionally, if the federal government is to issue a “jeopardy”

conclusion for the Rapid River and/or South Fork Salmon River fisheries, the Nez Perce Tribe first requests NOAA Fisheries to apply the conservation principles as outlined above (Principles b through e) to the combined fisheries that are expected to occur of which the implementation of will impose incidental impacts to listed fish to those tributaries. The State of Idaho uses mark-selective fisheries, when combined with how NOAA Fisheries administers their stepped harvest schedules (see information below) for the South Fork Salmon River, has resulted in an imbalance in catch between the state and the Nez Perce Tribe. The Nez Perce Tribe hopes that this issue will be resolved through the development of a long-term management plan for the Columbia River and tributaries.

The now expired CRFMP directed the affected Parties to develop tributary harvest and production plans for each of the subbasins. Where harvest opportunities are expected, the states and tribes will negotiate a sharing of the harvest.

### **Description of Tribal Fisheries**

Tribal ceremonial and subsistence (C&S) fisheries occur at various locations throughout the Snake River Basin. Nez Perce commercial fisheries in the Snake River Basin has occurred in years 2001 through 2004, and will likely not occur in 2005. In recent years, the Nez Perce Tribe has voluntarily reduced ceremonial and subsistence fisheries to target hatchery stocks near hatcheries, although the Tribe continues to preserve the right to harvest in wild production areas. These voluntary restrictions (Principle e above) have been made in good faith and for the projected returns for this year, the Nez Perce Tribe does not agree to further restrictions on treaty usual and accustomed fisheries take levels, until significant action is taken on state recreational fisheries first or NOAA Fisheries commitment to additional rebuilding measures are taken such that the conservation burden being placed on the Nez Perce Tribe is reduced. Proposed harvest for 2005 SRB fisheries may change in-season, based on updated return expectations and consistent with the harvest management guidelines as described in this assessment. Since 1986, tribal chinook fisheries have generally occurred from May through mid-August. No tribal fisheries for fall chinook or sockeye have been authorized in recent years. Although some steelhead C&S fisheries are open year-round in parts of the Snake River Basin, the tribal harvest on steelhead occurs primarily from October through April where steelhead are abundant, and salmon are not. Steelhead harvested in the C&S fisheries are largely of hatchery origin.

During tribal fisheries for spring/summer chinook, a variety of gear types are utilized. In tribal fisheries where unmarked fish are to be released, hook-and-line or dipnets may be the primary gear types utilized to minimize incidental take of listed fish. A 10% handling mortality will be used in this assessment for all non-retention hook-and-line catch. Dipnet release mortality studies for Columbia River salmon fisheries are lacking. It is believed that dipnet handling mortality is less than the 10% assumed for hook-and-line non-retention fisheries. For the purposes of this assessment, a 1% handling mortality will be used for all non-retention dipnet catch (Vincent-Lang 1992). The Nez Perce Tribe propose to use an abundance based harvest management approach in that we will target 50% of the harvestable returns to the Snake River

Basin and reserve the right to increase or decrease harvest as returns increase or decrease from predicted values. The Tribe has considerable interest in expanding tribal fisheries to usual and accustomed fishing areas not previously fished because of diminished returns.

## **2005 Snake River Basin Expected Returns**

Expected 2005 returns to the Snake River Basin are displayed in Table 2. These are based on the Idaho Department of Fish and Game (IDFG) modified forecast methods agreed to by TAC. Projected Snake River tributary returns are estimated using independent cohort projections, and distribution of the estimated spring/summer chinook smolt habitat for various subbasins above Lower Granite Dam.

The TAC is continually reviewing the spring/summer chinook run information. However, this biological assessment uses an inseason prediction of 23,074 spring and summer chinook to the Lower Granite Dam.

### **Geographic Units**

For purposes of this assessment, the Snake River Basin fisheries proposed by the Nez Perce Tribe have been grouped into six separate geographic management units within the Treaty of 1855 Reservation boundary where ceremonial, subsistence, and commercial fisheries have historically occurred for the Tribe<sup>4</sup>: 1) Mainstem Snake River; 2) Tucannon River Subbasin; 3) Clearwater River Subbasin; 4) Salmon River Subbasin; 5) Grande Ronde River Subbasin, and 6) Imnaha River Subbasin.

### **Unit 1: Mainstem Snake River**

Spring and summer chinook, sockeye, and steelhead migrate through this mainstem unit en route to natal tributary destinations. Fall chinook spawning is known to occur in mainstem dam tailraces (Dauble et al. 1994), in the free flowing mainstem Snake River from the head of the Lower Granite Reservoir up to Hells Canyon Dam, and in the lower portions of larger tributaries. Chinook have been known to spawn in Asotin Creek, which enters the Snake River at RM 145. Asotin Creek is one of the 39 subpopulations described for the Snake River ESU in the Proposed Recovery Plan (NMFS 1995). However, recent discussion between the co-managers indicate that chinook have not spawned in Asotin Creek since 1993, and that the subpopulation is probably now extinct. Adult anadromous salmonid fisheries in Asotin Creek have not occurred

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<sup>4</sup>The anticipated 2005 Nez Perce fisheries and 'take' set to occur in the Imnaha River Subbasin, the Tucannon River Subbasin, and the Grande Ronde River Subbasin, are submitted via separate tribal management plans initiated under the ESA Tribal 4(d) Rules and are no longer considered in the context of this biological assessment.

in recent years and are not planned for 2005. Asotin Creek is not included in other geographic units as outlined in this assessment.

Spring chinook salmon also return to the base of Hells Canyon Dam. Part of the Idaho Power Company Hells Canyon Complex mitigation hatchery production at Rapid River are released at the base of Hells Canyon Dam. With the listing of several hatchery stocks returning to tributaries in the Snake River, and the progeny of hatchery fish that spawned in the wild that are also considered listed, the Hells Canyon releases are generally not targeted by any fisheries. Consequently, when they are trapped upon return, they are only used as a back-up brood source for the Rapid River program.

### **Nez Perce C&S Fisheries**

For 2005, the Nez Perce Tribe may not propose to harvest hatchery-origin spring chinook migrating to the Oxbow Hatchery facility in the area of the mainstem SR from the Imnaha River upstream to the base of the Hells Canyon Dam. Dates for the fishery could be set during the end of May with anticipated opening from early June through July; closures will be regulated inseason.

The total predicted return of spring chinook past the area of the mainstem SR, from the Imnaha River upstream to the Hells Canyon Dam, is predicted to be 600 adults, of which the Nez Perce Tribe proposes to target 50% of the harvestable surplus. These fish are all unlisted hatchery fish that are used as back-up brood source for Rapid River. The Rapid River hatchery is expected to achieve its broodstock needs this year based on the estimated hatchery fish expected to return to the facility, and so the Nez Perce Tribe proposes to take 300 spring chinook destined to the Oxbow Hatchery facility.

### **Summary - Unit 1**

The Nez Perce Tribe's proposal is to harvest up to 300 hatchery-origin spring chinook destined to the Oxbow Hatchery facility on the mainstem Snake River.

Permitted gear types include dipnet, gaff, spear, long bow, hoopnet, and hook and line. No listed spring/summer chinook or steelhead are expected to be harvested during the Tribal C&S fisheries for chinook.

## **Unit 3: Clearwater River Subbasin**

The Clearwater River enters the Snake River just above the Washington/Idaho border at Lewiston (RM 139). The Clearwater River Subbasin is located entirely in Idaho, and supports

runs of summer steelhead, spring chinook, and fall chinook. Summer chinook and sockeye are not present in this subbasin. Chinook returned throughout this subbasin until the construction of Lewiston Dam early in this century. In the late 1940's, spring chinook were reintroduced in the Clearwater drainage. Wild production has been reestablished in the Lochsa, Selway, and South Fork Clearwater rivers. The wild spring chinook population in this subbasin is not listed under the ESA. Listed fall chinook currently spawn in the mainstem Clearwater River from the Potlatch Mill site upstream to the lower South Fork Clearwater, in the North Fork Clearwater downstream of Dworshak Dam and recently, in the lower Potlatch River (Bill Arnsberg, Nez Perce Tribe personal communication).

### **Nez Perce C&S Fisheries**

The Nez Perce Tribe propose Ceremonial and Subsistence fisheries for the hatchery and wild/natural origin spring chinook to the Clearwater River Subbasin. The tributaries located within the Clearwater River Subbasin that tribal fisheries are set to occur due to the predicted returns are the mainstem Clearwater River, North Fork Clearwater River, South Fork Clearwater River (primarily the Red River and Crooked River areas), Clear Creek, Lochsa River, and Selway River. The total predicted spring chinook return to the Clearwater River Subbasin (Table 8) is 6,430 fish, which is 2,130 fish more than the broodstock needs of 4,300 for the subbasin hatchery programs (Dworshak National Fish Hatchery, Kooskia National Fish Hatchery, Clearwater Anadromous Fish Hatchery, and Nez Perce Tribal Hatchery program). The Nez Perce Tribe is proposing a 2005 fishery targeting 1,065 spring chinook destined to return to the Clearwater River Subbasin for tribal harvest (see Table 8).

The areas open are as follows:

- ▶ Mainstem Clearwater River/North Fork Clearwater River - the mainstem Clearwater River from its confluence with the Snake River upstream to the confluence with the Lochsa and Selway rivers, and the North Fork Clearwater from its confluence with the mainstem upstream to the dam.
- ▶ Clear Creek - area just below the hatchery ladder and downstream to the mouth of Clear Creek.
- ▶ South Fork Clearwater River - confluence of the South Fork Clearwater River with the Middle Fork Clearwater River upstream to the 60 feet below the weirs located on Red River and Crooked River (tributaries on South Fork Clearwater with primary fishing reaches).
- ▶ Lochsa River - area just below the hatchery trap on Walton Creek, tributary to Lochsa River, downstream to the confluence of Lochsa River with Selway River and the Middle Fork Clearwater River (Three Rivers area).
- ▶ Selway River - mouth of Selway River upstream to the just below the mouth of Meadow Creek.

In addition, the Nez Perce Tribe propose a fishery to harvest 33 of the predicted 332 adult wild/natural spring chinook destined to the Clearwater River system (Table 2). This take would represent 10% of predicted wild/natural returns to the Clearwater River Subbasin. The fishing area is on the mainstem Clearwater River from its confluence with the Snake River upstream to the confluence with the Lochsa River and Selway River (Three Rivers area). The anticipated opening is for the spring chinook fishery for this subbasin will be from late April through early to mid-August; closures will be regulated inseason. All traditional fishing gear is permitted.

### **Summary - Unit 3**

The Nez Perce Tribe's proposal is to harvest 1,065 hatchery and 33 wild/natural spring chinook in the Clearwater River Subbasin. Nez Perce tribal fisheries are not expected to cause mortality of any listed species other than the steelhead impacts that will be addressed in the Mainstem Columbia River fall fishery Biological Assessment. Listed sockeye and spring chinook are not produced in this subbasin and therefore should not be caught in any fishery in the Clearwater River Subbasin.

### **Unit 4: Salmon River Subbasin**

The Salmon River enters the Snake River at RM 188. The Salmon River Subbasin is located entirely in the State of Idaho and is the largest salmon producing subbasin of the Snake River. Steelhead and wild spring/summer chinook are produced throughout the Salmon River Subbasin. Sockeye return to Stanley Basin lakes in the upper reaches of the mainstem Salmon River. Fall chinook are present in this subbasin in at least the lower 10 miles of the mainstem Salmon River.

### **Nez Perce C&S Fisheries**

#### **Rapid River Spring Chinook**

The Nez Perce tribal C&S fisheries targeting Circle C Hatchery (commonly known as Rapid River Hatchery) spring chinook have occurred in Rapid River since 1980. Rapid River Hatchery spring chinook return primarily from mid-May until late June. Tribal harvest is by gaff, dipnet, spear, and hook and line.

A small return of wild/natural summer chinook enters Rapid River from late June until early September. The 2005 Nez Perce's fishery in Rapid River for Circle C Hatchery spring chinook, may impact listed wild spring/summer chinook. However, it is uncertain that the targeted harvest number of hatchery chinook will be reached before wild fish enter the system. The Nez Perce spring chinook fishery in Rapid River will not catch sockeye or wild fall chinook.

The estimated return to Rapid River Hatchery is 5,000 fish, which is 2,600 fish more than the broodstock goal of 2,400. The estimated listed chinook return to the Little Salmon River drainage is 85 spring and summer adults according to recent TAC estimates (Table 2). The Nez Perce Tribe propose a 2005 spring chinook fishery in the Little Salmon and Rapid rivers for a harvest which would take 1,300 hatchery and 10 wild/natural chinook for tribal ceremonial and subsistence uses. This take would represent 26% of predicted hatchery and 11.76% of wild returns. The fishing area for the Little Salmon River is from the Salmon River Bridge upstream of the Salmon River confluence. The fishing boundaries for Rapid River are from the confluence upstream to 60 feet downstream of the trap entrance. Effort and catch are primarily distributed in Rapid River from the trap entrance to the confluence with the Little Salmon. Dates for the fishery will be set during April with anticipated opening from late April through July; closures

will be regulated inseason. Initially, fishing will be open to all traditional gear including gaff, dipnet, hoopnet, spear, long bow and hook and line. If the take of wild fish reaches 7 (70% of the harvest impact ceiling) before the hatchery target take is reached, the fishery will be restricted to dipnet only to account for the additional incidental take of 3 wild spring/summer chinook. The remaining fishery will target hatchery fish with catch and release of wild fish.

### **South Fork Salmon River Summer Chinook**

The TAC estimated return to the South Fork Salmon River system is 4,398 Snake River spring/summer chinook. This is based on 658 listed wild fish, 3,696 unlisted hatchery fish, and an additional 44 listed hatchery fish predicted to return to the South Fork Salmon River system (Table 9).

Based on the Northwest Power Planning Council's presence/absence database, the majority (67%) of the wild spring/summer chinook smolt production capacity of the South Fork Salmon River system is in the East Fork South Fork Salmon River and the Secesh River drainage. Nez Perce fisheries will be located above these natural production areas, and harvest of fish destined to spawn in these tributaries is not expected. However, redd count data indicate the majority of natural spawning occurs in the mainstem South Fork. There is no indication that fall chinook or sockeye will enter or be harvested in the South Fork Salmon River.

NMFS' view is that there exists a differentiated stock structure in the South Fork and that proposed fisheries need to recognize and manage for those differences to the degree possible. The Nez Perce Tribe does not agree with the NMFS' identification and management of the South Fork Salmon River into the lower mainstem (SF mouth to Blackmere Creek; including Poverty Flats), upper mainstem (Blackmere Creek to Stolle Meadows), and the unlisted, hatchery-origin fish distinct breeding populations. Continued segregation of a hatchery component increases the chances of domestication selection effects, and has shown to be a detrimental hatchery practice. Additionally, spawning ground surveys continually show that a sizeable portion of the spawners in the lower South Fork (Poverty Flats reach) consist of hatchery fish, thus making the segregation strategy quite artificial. Managing this one stretch of the same river as though it were three populations detracts from achieving realistic rebuilding goals for the South Fork population. Further, the Tribe objects to the use of two separate stepped harvest rate schedules developed in the year 2000 opinion for managing each of these areas. The first harvest rate schedule depends on the expected return of natural-origin spawners to the Poverty Flats index area; the second depends on the forecast return to the weir of natural-origin and hatchery-origin supplementation fish and the resulting expected number that would be passed above the weir as a result of the hatchery/genetic management protocol.

The Nez Perce Tribe propose a 2005 spring/summer chinook ceremonial and subsistence fishery in the South Fork Salmon River to target a harvest of 1,148 marked and unmarked (adipose misclips) hatchery chinook predicted to return to the South Fork Salmon River. The fishery as proposed would also be expected to take a total of 14 listed fish wild/natural and/or listed hatchery chinook based upon the projected return for listed and unlisted chinook to the weir and to the area from Goat Cr. to confluence with the East Fork South Fork. Areas open to fishing



would include the South Fork Salmon River from 10 feet below the weir (RM 72) downstream to the confluence with the East Fork South Fork. The fishery will be during June through August. Final season structure will be set by field regulations of the Nez Perce Tribe. Fishing gear permitted will initially include all traditional gear (gaff, dipnet, hoopnet, long bow, spear, and hook and line).

The 2005 prediction for the South Fork Salmon River is for 702 (16%) listed fish and 3,696 (84%) unlisted hatchery chinook, which is 2,296 fish more than the broodstock goal of 1,400 fish. The total return to the hatchery rack would be 4,013 fish (consisting of 317 listed and 3,696 unlisted fish), while an estimated 222 listed fish would also return to spawn downstream of the weir (Table 2). The Nez Perce Tribe propose to target half of the projected harvestable hatchery returns, which is 1,148 fish after broodstock needs have been factored in. The initial fishery would be an indiscriminate fishery utilizing all traditional gear types. Based on proportion of listed fish to unlisted fish, this fishery would result in the indirect take of 12 fish while targeting 74 hatchery returns. This would be the trigger to restrict gear to dipnet only to target the remaining 1,074 hatchery origin fish. All wild and hatchery listed fish caught are to be released. A handle rate of 204 listed fish is projected to occur while targeting the remaining allocated amount. Therefore, the dipnet fishery would have a catch-and-release mortality (1%) of an additional 2 listed chinook. Total impacts of the proposed Nez Perce Tribe fishery in the South Fork Salmon River would be 14 (2.00% of the total listed run of 702) listed fish.

#### **Summary - Unit 4**

In the Rapid River, the Nez Perce Tribe is expected to harvest 1,300 hatchery and 10 wild chinook. In the South Fork Salmon River hatchery-influenced area, the Nez Perce Tribe is expected to harvest 1,148 unlisted hatchery and 14 listed spring/summer chinook. No expected impacts to steelhead in the South Fork Salmon River.

### **Unit 5: Grande Ronde River Subbasin**

The Grande Ronde River originates in the headwater streams of the Blue and Wallowa mountains of northeast Oregon. The mainstem flows generally north and east, crossing into the State of Washington 37 miles upstream from its confluence with the Snake River at RM 169. The Grande Ronde River Subbasin supports runs of summer steelhead, spring chinook, and small numbers of fall chinook. Steelhead and spring chinook spawn throughout the entire watershed. Fall chinook appear to be utilizing the lower portion of the mainstem. Sockeye and summer chinook are not present in the Grande Ronde River Subbasin.

#### **Nez Perce C&S Fisheries**

Since 1989, tribal fisheries have concentrated only on Lookingglass Creek because of very poor returns elsewhere in the Grande Ronde River Subbasin. The Lookingglass Hatchery spring chinook fishery takes place in Lookingglass Creek from the hatchery weir downstream 1.5 miles

to the mouth. Dates for the fishery will be set during April with anticipated opening from May through July; closures will be regulated inseason. Treaty Indian harvest is by gaff, dipnet, hoopnet, spear, and hook and line. The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Oregon Department of Fish and Wildlife, submitted a Grande Ronde River Tribal Resource Management Plan, of which covered the Nez Perc Lookingglass Creek and Lostine River treaty fishery proposed take.

### **Summary - Unit 5**

The Nez Perce Tribe 2005 proposed take is covered in a separate Grande Ronde River tribal management plan that has already been submitted to NOAA Fisheries pursuant to ESA Tribal 4(d) Rules.

## **Summary of Snake River Basin Fishery Impacts on Listed Snake River Salmon**

Projected tribal harvest and mortality of spring/summer chinook in 2005 proposed fisheries are shown in Table 6, by specific area/stock and harvest. Table 7 summarizes total estimated salmon harvest and mortality as proposed for 2005. Both Tables 6 and 7 include non-retention mortality. The Nez Perce Tribe propose to target 50% of the harvestable returns to the Snake River Basin and reserve the right to increase or decrease harvest as returns increase or decrease from predicted values.

Tribal C&S fisheries in the Snake River Basin which target steelhead will be assessed in the fall fishery Biological Assessment. Tribal C&S fisheries in the Snake River Basin which target hatchery spring/summer chinook are conducted in areas and during time frames that wild fall chinook are not present. A 1% and a 10% handling mortality has been assumed for all non-retention dipnet and hook-and-line fisheries, respectively, in this assessment. The effects of traditional gear types on wild spring/summer chinook are evaluated consistent with their application to tributaries containing listed populations.

The Nez Perce Tribe proposes to have a total harvest of 3,813 non-listed Snake River spring/summer chinook and mortality up to 24 listed fish for the Snake River Basin. Recently, tribal fisheries have voluntarily targeted hatchery stocks near hatcheries, although the Nez Perce Tribe reserve options for harvest opportunities in wild production areas located in the Clearwater River, Snake River, and the Salmon River drainages.

The Tribe has developed this Biological Assessment pursuant to its authority as a co-manager of the resource and pursuant to its treaty-reserved fishing rights. The Nez Perce Tribe expects the NMFS to fulfill its trust obligation in addressing this document consistent with the *U.S. v. Oregon* case that explicitly outlines the Nez Perce Tribe's right to take fish and regulate the fishery resource. In 1991, 1994 and 1995, the Tribe voluntarily restricted tribal fisheries by not authorizing a season for those particular years and hatchery programs in the Snake River Basin that experienced poor hatchery and wild/natural spring/summer chinook returns.

Implementation of this Biological Assessment of proposed fisheries for 2005 is consistent with the Nez Perce Tribe's legally enforceable treaty-reserved fishing rights and with the NOAA Fisheries' trust responsibilities to the Nez Perce Tribe. All other non-Indian activities (hydrosystem, habitat, hatcheries, and non-Indian harvest) should be considered in the rest of the salmon life-cycle to just before the fish enter the treaty Indian fishery. Otherwise, the burden of conservation would be placed solely on the tribe, which is inconsistent with the conservation principles established in *U.S. v. Oregon*. The Nez Perce Tribe expects the NOAA Fisheries, as a federal agency of the United States government, to evaluate the fisheries within the Snake River Basin with the Nez Perce Tribe's management authority and jurisdiction pursuant to the Treaty of 1855, the conservation necessity principles, and the *U.S. v. Oregon* harvest management framework.

If the federal government is to issue a "jeopardy" conclusion for the Rapid River and/or South Fork Salmon River fisheries, the Nez Perce Tribe first requests NOAA Fisheries to apply the established conservation principles to the combined fisheries that are expected to occur in those tributaries so that NOAA Fisheries Biological Opinion (i.e., NOAA Fisheries' Incidental Take Permit, Reasonable and Prudent Alternative, and the Conservation Recommendations) ensures the following principles are met: that they are least restrictive available to achieve the required conservation purpose; they do not discriminate against Nez Perce fishing activities, either on their face or as applied; that their purpose cannot be achieved solely through the regulation of non-Indian activity; and, that voluntary tribal conservation measures are not adequate to achieve the conservation purpose.

### **Actions Implemented to Limit the Catch of Listed Species**

Most tribal C&S fisheries in the Snake River Basin target hatchery spring/summer chinook and hatchery steelhead. Spring/summer chinook fisheries occur during late spring and summer. Hatchery steelhead fisheries generally occur during late fall through early spring. Tribal fisheries generally occur in areas and during time frames where sockeye and wild fall chinook are not present. Where wild chinook and steelhead are likely to be present the following actions are implemented:

1. The Nez Perce Tribe intend to manage their Rapid River/Little Salmon River, mainstem Snake River, and South Fork Salmon River spring and summer chinook fisheries to target hatchery chinook.
2. The Nez Perce Tribe intend to manage their spring/summer chinook harvest primarily in hatchery influenced areas (sections of the Salmon River Subbasin), under harvest levels consistent with our tribal review and analysis. The Nez Perce Tribe structures its fishery regulations to target primarily hatchery fish. The Nez Perce Tribe continues to reserve the right to harvest in wild production areas. Fisheries are closed by regulation long before fish begin spawning.

3. The Nez Perce Tribe to conduct catch monitoring and enforcement of fisheries to ensure that tribal fishers comply with tribal regulations.

## Literature Cited

- Bjornn, T.C., D.R. Craddock, and D.R. Corely. 1968. Migration and survival of Redfish Lake Idaho sockeye salmon, *O. nerka*. Transactions of the American Fisheries Society. 97:360-373.
- Bureau of Indian Affairs (BIA). 1992. Biological Assessment of the Impacts of Fisheries Proposed by the Shoshone-Bannock Tribes for Spring/Summer Chinook in the Salmon River System during 1992. Fort Hall Agency. June 17, 1992.
- BIA. 2001. Biological Impacts on Salmon Species Listed Under the Endangered Species Act in the 2001 Treaty Indian Fall Season Fisheries in the Columbia River Basin. Columbia Inter-Tribal Fish Commission. June 6, 2001.
- BIA. 2002a. Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2002 Treaty Indian Fall Season Fisheries in the Columbia River Basin. July 2, 2002.
- BIA. 2002b. Biological Assessment of Impacts of the Proposed Nez Perce 2002 Fisheries in the Snake River Basin. April 16, 2002.
- BIA. 2003. Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2003 Non-Indian and Treaty Indian Fall Season Fisheries in the Columbia River Basin. June 10, 2003.
- Dauble, D.D., R.L. Johnson, R.P. Mueller, C.S. Abernathy, B.J. Evans, D.R. Geist. 1994. Identification of fall chinook salmon spawning sites near Lower Snake River Hydroelectric Projects. Pacific NW Lab. Report to US Army Corps of Engineers, Walla Walla District. 28 p. & appendices.
- IDFG. 1999. Application for an Individual Incidental Take Permit Pursuant to the Endangered Species Act of 1973, Idaho Department of Fish and Game - Sport Fishing Program (Currently Permit # 1150). Idaho Department of Fish and Game, Boise ID. November 15, 1999.
- IDFG. 2000. Idaho Department of Fish and Game Proposal to Conduct Sport Fisheries for Spring Chinook Salmon in Idaho in 2000. Little Salmon River and Clearwater River. Idaho Department of Fish and Game, Boise ID. January 26, 2000.
- IDFG. 2003. Idaho Department of Fish and Game 2003 Proposal to Conduct Recreational Fisheries for Unlisted Spring Chinook Salmon in Idaho. Idaho Department of Fish and Game, Boise, ID. March 11, 2003.
- Kutchins, K. 1998. Additional Biological Assessment Information for Impacts of the Shoshone-Bannock Tribes' Proposed 1999 Steelhead Fishery in the Snake River basin on Snake River Salmon and Steelhead Listed under the Endangered Species Act. December 8, 1998.
- LeFleur, C. 2000. Snake River Fall Chinook Biological Assessment Tables. Memorandum to TAC. April 25, 2000.
- National Marine Fisheries Service. 1993a. Biological Opinion: 1993 winter, spring and summer season fisheries conducted under the Columbia River Fish Management Plan, and application for an incidental take permit under Section 10 (a) (1) (B) for the State of Idaho recreational fishing program. March 1, 1993.

- NMFS. 1993b. Addendum to March 1, 1993 biological opinion on 1993 winter, spring and summer season fisheries conducted under the Columbia River Fish Management Plan (specifically regarding tribal fisheries on the upper Salmon River). June 24, 1993.
- NMFS. 1993c. Second addendum to March 1, 1993 biological opinion on 1993 winter, spring and summer season fisheries conducted under the Columbia River Fish Management Plan (specifically regarding tribal fisheries on the South Fork Salmon River). July 9, 1993.
- NMFS. 1994a. Biological Opinion on 1994 Fisheries in the Snake River basin conducted under the Columbia River Fish Management Plan. May 25, 1994.
- NMFS. 1994b. Addendum to May 25, 1994, biological opinion on 1994 Fisheries in the Snake River basin conducted under the Columbia River Fish Management Plan. July 12, 1994.
- NMFS. 1995. Biological Opinion: 1995 Fisheries in the Snake River Basin conducted under the Columbia River Fish Management Plan. August 4, 1995.
- NMFS. 1996. Biological Opinion: 1996 Fisheries in the Snake River Basin conducted under the Columbia River Fish Management Plan. July 12, 1996.
- NMFS. 1997a. Proposed Treaty Fisheries in the Clearwater, Salmon, and Grande Ronde River Basins in May and June, 1997. Informal Consultation Letter. May 16, 1997.
- NMFS. 1997b. Biological Opinion: 1997 Fisheries in the Snake River Basin conducted under the Columbia River Fish Management Plan. July 11, 1997.
- NMFS. 1998a. Biological Opinion: 1998 Fisheries in the Snake River Basin
- NMFS. 1999a. Biological Opinion and Consultation Opinion: Impacts of Treaty Indian and Non-Indian Fisheries in the Columbia River Basin, January 1, 1999 - July 31, 1999, on Salmon and Steelhead Listed or Proposed for Listing Under the Endangered Species Act. January 25, 1999.
- NMFS. 1999b. Biological Opinion: 1999 Fisheries in the Snake River Basin conducted under the Columbia River Fish Management Plan. June 16, 1999.
- NMFS. 2000. Biological Opinion: Impacts of Treaty Indian and Non-Indian year 2000 winter, spring and summer season fisheries in the Columbia River Basin on salmon and steelhead listed under the Endangered Species Act. February 29, 2000.
- NMFS. 2001. Biological Opinion: Impacts of the Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye on Salmon and Steelhead Listed Under the Endangered Species Act. March 21, 2001.
- NMFS. 2002. Biological Opinion: Impacts of Treaty Indian and Non-Indian Fisheries in the Snake River Basin in Year 2002 on Salmon Listed Under the Endangered Species Act. July 9, 2002.
- ODFW. 1998 Application for a permit for scientific research and to enhance the propagation or survival of Imnaha River chinook salmon *Oncorhynchus tshawytscha* under the Endangered Species Act of 1973. Oregon Department of Fish and Wildlife, La Grande, Oregon.

- ODFW/WDFW. 2002. Joint Staff Report Concerning Commercial Seasons for Spring Chinook, Sturgeon, Shad, Smelt, and other Fisheries and Miscellaneous Regulations for 2002. Oregon Department of Fish and Wildlife and Washington Department of Fish and Wildlife. January 18, 2002.
- ODFW, Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe. 2003. Lower Snake River Fish and Wildlife Compensation Plan Grande Ronde and Imnaha Basins Annual Operation Plan. Oregon Department of Fish and Wildlife, Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe. February 23, 2004.
- Parties to *U.S. v. Oregon*. 1987. Columbia River Fish Management Plan. Columbia River Inter-Tribal Fish Commission. Portland, Oregon.
- Speaks, S. 1999. Letter to W.Stelle Jr., NMFS re Consultation concerning impacts of proposed 2000 Treaty Indian fisheries (January 1 - July 31) in the Columbia River Basin on salmon species listed under the ESA. December 21, 1999. 3 p w/Attached Biological Assessment.
- TAC. 1993. Biological Assessment of the Impacts of Anticipated 1993 Fisheries in the Snake River Basin on Listed Species under the Endangered Species Act. Columbia River Technical Staffs. Portland, OR. January 29, 1993.
- TAC. 1994. Biological Assessment of Impacts of Anticipated 1994 Fisheries in the Snake River Basin on Listed Snake River Salmon Under the Endangered Species Act. Snake River Technical Staffs. Portland, OR. January 18, 1994.
- TAC. 1995. Biological Assessment of the Impacts of Proposed 1995 Fisheries in the Snake River Basin on Listed Snake River Salmon Species Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. Portland, OR. May 2, 1995.
- TAC. 1996a. Biological Assessment of the Impacts of Anticipated 1996-1998 Winter, Spring, and Summer Season Columbia River Mainstem and Tributary Fisheries on Listed Snake River Salmon Species Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. January 22, 1996.
- TAC. 1996b. Biological Assessment of Impacts of Proposed 1996 Fisheries in the Snake River Basin on Listed Snake River Salmon under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. June 18, 1996.
- TAC. 1996c. Biological Assessment of the Impacts of Anticipated 1996-1998 Fall Season Columbia River Mainstem and Tributary Fisheries on Snake River Salmon Species Listed Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. July 18, 1996.
- TAC. 1997a. Updated Tables and Appendices for the Biological Assessment of the Impacts of Anticipated 1996-98 Fall Season Columbia River Mainstem and Tributary Fisheries on Snake River Salmon Species Listed under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. May 8, 1996.
- TAC. 1997b. Updated Tables and Appendices for the Biological Assessment of the Impacts of Anticipated 1996-1998 Winter, Spring, and Summer Season Columbia River Mainstem and Tributary Fisheries on Listed Snake River Salmon Species Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. December 17, 1997.

- TAC. 1997c. Biological Assessment of Impacts of Proposed 1997 Fisheries in the Snake River Basin on Snake River Salmon Listed Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. May 14, 1997.
- TAC. 1998a. Biological Assessment of the Impacts of Proposed 1998 Fisheries in the Columbia River and Snake River Basins on Steelhead Listed Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. January 21, 1998
- TAC. 1998b. Updated Tables for the Biological Assessment of the Impacts of Anticipated 1996-1998 Fall Season Columbia River Mainstem and Tributary Fisheries on Snake River Salmon Species Listed Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. March 19, 1998.
- TAC. 1998c. Biological Assessment of Impacts to Salmon (Including Steelhead) Populations Listed Under the Endangered Species Act from Anticipated Fisheries in the Columbia River Basin between January 1 and July 31, 1999. November 25, 1998.
- TAC. 1999. Updated Tables for the Biological Assessment of the Impacts of Anticipated 1999 Fall Season Columbia River mainstem and Tributary Fisheries on Snake River Salmon Species Listed Under the Endangered Species Act. *US v Oregon* Technical Advisory Committee. March 26, 1999.
- TAC. 2001. Biological Assessment of Impacts of Proposed 2001 Fisheries in the Snake River Basin on Snake River Salmon and Steelhead Listed Under the Endangered Species Act. *U.S. v. Oregon* Technical Advisory Committee. April 26, 2001.
- Vincent-Lang, D., M. Alexandersdottir, D. McBride. 1992. Mortality of coho salmon caught and released using sport tackle in the Little Susitna River, Alaska. Alaska Department of Fish and Game, Sport Fish Division. Anchorage, AK.
- WDFW and ODFW. 2000. Section 10 Permit application for the incidental take of listed species in Washington and Oregon mainstem fisheries of the Columbia River January through July, 1999 - 2000. January 14, 2000.
- Yuen, H. and C. LeFleur. 1999. Updated Replacement Tables for the Biological Assessment of Impacts to Salmon (Including Steelhead) Populations Listed Under the Endangered Species Act from Anticipated Fisheries in the Columbia River Basin between January 1 and July 31, 1999. January 12, 1999.



**Table 1.**  
**Preseason projections for 2005 returns of Snake River spring and summer chinook,**  
**sockeye based on the TAC run size predictions.**

	Forecast Columbia River Mouth	Forecast Lower Granite Dam
Spring Chinook		
Snake River Total		18,300
Snake River Non-Clipped		4,500
Snake River Ad-Clipped		13,800
Summer Chinook		
Snake River Total		5,480
Snake River Non-Clipped		706
Snake River Ad-Clipped		4,774
		23,780
Spring/ Summer Chinook		
Snake River Total		23,074
Snake River Hatchery Ad- Clipped		18,574
Snake River Hatchery Non-clipped		655
Snake River Hatchery Total		19,229
Snake River Wild/Natural		3,845
Sockeye		
Columbia River	70,700	--
Snake River	66	51

**Table 2. Projected pre-season Lower Granite counts and Snake River tributary adult returns of spring/summer chinook salmon in 2005.**

Forecasts		Spring/Summer Chinook						
Lower Granite Dam Total		23074						
Lower Granite Dam Total		18574						
Lower Granite Dam Total		655						
Lower Granite Dam Total		3845						
Tributary	Broodstock Required	Marked Unlisted Hatchery	Unmarked Unlisted Hatchery	Ad-c Listed Hatch	Non Ad-c Listed Hatch	Wild/ Natural	Total Listed	Total
Snake River								
Oxbow Hatchery		600	--	0		0	0	600 <sup>1</sup>
Tucannon River	na	--	--	131	0	174	305	305 <sup>2</sup>
Clearwater River								
Clearwater W/N		--				332	0	332 <sup>3,4,5</sup>
Clearwater Hatchery	2,500	3,385						3,385
Dworshak Hatchery	1,200	1,704				0	0	1,704 <sup>6</sup>
Kooskia Hatchery	600	941				0	0	941 <sup>7</sup>
Subtotal Clearwater	4,300	6,030	0	0		332	0	6,362
Salmon River								
Little Sal and Rapid River		0				85	85	85 <sup>8</sup>
Rapid River Hatchery	2,400	5,000				0	0	5,000 <sup>9</sup>
Lower Main Salmon		0				15	15	15 <sup>10</sup>
Middle Main Salmon		0				30	30	30 <sup>11</sup>
*Secesh, Johnson, EFSFSR						200	200	200 <sup>12</sup>
*S Fk Sal Mouth-Miners		0				42	42	42 <sup>13</sup>
*S Fk Miners-Poverty						242	242	242 <sup>13</sup>
*S Fk Sal Poverty-Weir		0				152	152	152 <sup>13</sup>
*S. Fk Sal River Weir	1,400	3,696			44	222	266	3,962 <sup>14</sup>
Middle Fork Salmon		0				738	738	738 <sup>15</sup>
Panther Creek								
Lemhi River		0				142	142	142 <sup>17</sup>
Mainstem above Lemhi								
*Pahsimeroi Hatchery	540	0	0	644	131	67	843	843 <sup>18</sup>
Upper Sal (Mid-E Fk)						82	82	82 <sup>19</sup>
East Fork Salmon River						101	101	101 <sup>20</sup>
East Fork Rack								<sup>21</sup>
Yankee Fork						22	22	22 <sup>22</sup>
Valley Creek						47	47	47 <sup>23</sup>
Main Sal (E Fk-Sawtooth)						140	140	140 <sup>24</sup>
Sawtooth Hatchery Weir	600	648		73	82	223	378	1026 <sup>25</sup>
Grande Ronde River								
Grande Ronde Subbasin		—						0 <sup>26</sup>
Lookingglass Hatchery	na							0 <sup>27</sup>
Imnaha River								
Imnaha Subbasin	na	—		755	0	193	0	948 <sup>28</sup>
TOTAL	9,240	15,974	0	1,603	257	3,249	3,830	21,084
* Summer Chinook		Total Hatchery 17,577						

## Footnotes For Table 2.

- 1/ Oxbow Hatchery. Independent prediction by IDFG. In 2002 the number of wild/natural adults forecasted to return was based on a proportion of the number of hatchery origin adults (about 1%) In 2003 no hatchery origin adults are forecasted to return.
- 2/ Tucannon River. Independent prediction by WDFW. These fish are Listed.
- 3/ Clearwater Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0864). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 4/ Red River Rack and Crooked River Rack. Independent prediction by IDFG. Does not include a forecast for number of RV and LV clipped chinook that were released as parr.
- 5/ Powell Rack. Independent prediction by IDFG. Does not include a forecast for the number of fish that were not fin clipped but were CWT.
- 6/ Dworshak Hatchery. Independent prediction by USFWS. Does not include a forecast for the number of fish that were not fin clipped but were CWT.
- 7/ Kooskia Hatchery. Independent prediction by USFWS. Does not include a forecast for number of RV and LV clipped chinook.
- 8/ Little Salmon and Rapid River Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0220). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 9/ Rapid River Hatchery. Independent prediction by IDFG.
- 10/ Lower Main Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0038). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 11/ Middle Main Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0079). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 12/ Secesh R. and Johnson Cr. Wild/Natural. Proportion spring/summer smolt production above Lower Granite Dam (.0519). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 13/ South Fork Salmon River sections 27-29 - below weir. Average of sibling/redd estimate (IDFG) and redd/LGR estimate (SBT).
- 14/ South Fork Salmon River Rack. Independent prediction by IDFG. Does not include a forecast for number of chinook that were CWT only and released as parr. Supplementation fish above weir are listed.
- 15/ Middle Fork Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.192). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 16/ Panther Creek Wild/Natural. Returns expected in 2005 from approximately 50 redds in 2001.
- 17/ Lemhi River Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.037). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 18/ Pahsimeroi Hatchery. Independent prediction by IDFG. These fish are listed.
- 19/ Upper Main Salmon (Middle Fork to East Fork). Proportion spring/summer smolt production above Lower Granite Dam (.0212). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 20/ East Fork Salmon River. Redd/LGR regression estimate (SBT).
- 21/ East Fork Rack. Independent prediction by IDFG.
- 22/ Yankee Fork Salmon River. Redd/LGR regression estimate ((SBT).
- 23/ Valley Creek. Redd/LGR regression estimate (SBT).
- 24/ Main Salmon River from the East Fork Salmon River to the Sawtooth Hatchery weir. Proportion spring/summer smolt production above Lower Granite Dam (.0364). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 25/ Sawtooth Hatchery. Independent prediction by IDFG.
- 26/ Grande Ronde Subbasin. Independent prediction by ODFW. Does not include Lookingglass Creek returns. These fish are listed.
- 27/ Lookingglass Hatchery. Independent prediction by ODFW.
- 28/ Imnaha Subbasin. Independent prediction by ODFW. These fish are listed.

**Table 3. Annual Nez Perce spring chinook harvest in the Grande Ronde River and Clearwater River subbasins, 1986-2004. /<sup>1</sup>**

Year	Lookingglass/ <sup>3</sup>		North Fork Clearwater/ <sup>3</sup>		Clear Creek/ <sup>3</sup>	
	Hatchery	Wild	Hatchery	Wild	Hatchery	Wild
1986	0	0	0	0	0	0
1987	0	0	160	0	50	0
1988	0	0	240	0	72	0
1989	0	0	346	0	58	0
1990	0	0	514	0	130	0
1991	0	0	0	0	0	0
1992	120	0	160	0	0	0
1993	50	0	43	0	0	0
1994	0	0	0	0	0	0
1995	0	0	0	0	0	0
1996	4	0	24	0	0	0
1997/ <sup>2</sup>	150	0	835	0	12	0
1998	0	0	182	0	20	0
1999	0	0	36	0	1	0
2000	23	0	1,173	0	10	0
2001	133	0	531	0	834	0
2002	35	0	794	0	683	49
2003	na	na	1,445	0	164	0
2004	na	na	419	0	389	11

1/ "na" indicates that a fishery may have occurred, but no catch data are available.

2/ The Nez Perce Tribe also harvested 4 spring chinook from the Lochsa River in 1997.

3/ Unlisted Fish.

<b>Table 4. Annual Nez Perce spring and summer Chinook harvest in the Salmon River Subbasin, 1982-2004.</b> <sup>1/</sup>					
Year	Spring Chinook Rapid River			Summer Chinook South Fork Salmon	
	Hatchery	Wild		Hatchery	Wild
1981	na	0		0	0
1982	na	0		0	0
1983	na	0		0	0
1984	na	0		0	0
1985	2,023	0		0	0
1986	1,855	0		0	0
1987	2,430	0		0	0
1988	3,520	0		0	0
1989	544	0		0	0
1990	980	0		0	0
1991	0	0		0	0
1992	643	0		0	0
1993	696	0		34	12
1994	0	0		0	0
1995	0	0		0	0
1996	0	0		0	0
1997	2,196	0		1	0
1998	603	15		3	1
1999	88	2	<sup>2/</sup>	4	0
2000	2,557	4	<sup>3/</sup>	88	5
2001	7,467	36		436	106
2002	2,425	19		423	62
2003	4,226	16		763	75
2004	5,280	21		290	3
<sup>1/</sup> "na" indicates that a fishery may have occurred, but no catch data are available. <sup>2/</sup> Fifteen wild fish released. <sup>3/</sup> 38 wild fish released. <sup>4/</sup> 46 wild fish released.					

Table 5. Summer Chinook returns to the South Fork Salmon River weir, 1980-2004.

Year	Lower Granite Counts <sup>1/</sup>	Nez Perce	South Fork Sho- Ban	South Fork Harvest <sup>2/</sup> Weir	Total	South Fork Counts
1980	8,200	--	--	--	--	175
1981	16,400	0	0	0	0	400
1982	16,600	0	0	0	0	502
1983	13,400	0	0	0	0	433
1984	11,900	0	0	0	0	934
1985	30,269	0	0	0	0	1,410
1986	37,876	0	0	0	0	1,468
1987	34,762	0	45	0	45	2,319
1988	35,640	0	100	0	100	2,285
1989	16,124	0	0	0	0	440
1990	22,408	0	22	0	22	911
1991	10,432	0	3	0	3	425
1992	24,405	0	100	0	100	2,643
1993	28,924	46	256	0	302	2,674
1994	3,915	0	8	0	8	527
1995	1,799	0	2	0	2	206
1996	6,823	0	12	0	12	462
1997	44,563	1	274	275	550	3,659
1998	14,242	4	120		124	898
1999	6,556	4	71		75	1,218
2000	37,755	93	377	470	940	6,391
2001	185,693	542	1,672	2,214	4,428	9,830
2002	97,185	485	1,097	1,582	3,164	7,469
2003	87,031	853	864	1,717	3,434	na
2004	79,591	293	812	1,105	2,210	na

1/ Combined spring and summer chinook counts.  
2/ Includes hatchery and natural fish mortalities.

**Table 6. Proposed Nez Perce Ceremonial and Subsistence fisheries for spring and summer chinook salmon within the Snake River Basin and impacts on listed salmon returns for 2005.**

Fishing site	Predicted Returns					Percent of Total				Proposed Harvest				Harvest Impacts (% of Total)			
	Hatchery		Wild		total	Hatchery		Wild		Hatchery		Wild		Hatchery		Wild	
	non-listed	listed	non-listed	listed		non-listed	listed	non-listed	listed	non-listed	listed	non-listed	listed	non-listed	listed	non-listed	listed
Rapid River	5,000	0	0	85	5,085	98%	0%	0%	2%	1,300	0	0	10	25.57%	0.00%	0.00%	0.20%
Clearwater River System 1/	6,430	0	332	0	6,762	95%	0%	5%	0%	1,065	0	0	0	15.75%	0.00%	0.00%	0.00%
South Fork Salmon	3,696	44	0	658	4,398	84%	1%	0%	15%	1,148	1	0	13	26.11%	0.02%	0.00%	0.30%
Snake River 2/	600	0	0	0	600	100%	0%	0%	0%	300	0	0	0	50.00%	0.00%	0.00%	0.00%

1/ The specific allocation per tributary of the Clearwater River Subbasin will be determined through coordination and co-management with IDFG.

2/ Includes fish destined to reach the area of the Snake River between Imnaha River upstream to Hells Canyon Dam.

<b>Table 7. Projected harvest and total spring and summer chinook mortality of 2005 proposed Nez Perce fisheries by specified area/stock.</b>			
Tributary		Non-Listed	Listed
Unit 1:	Mainstem Snake River	300	0
Unit 3:	Clearwater River	1,065	0
Unit 4:	Salmon River		
	Rapid River	1,300	10
	South Fork Salmon River	1,148	14
Grand Total		3,813	24

<b>Table 8. 2005 Predicted Spring and Summer Chinook Hatchery Returns at Lower Granite Dam and Nez Perce Tribe Share.*</b>					
<b>Location</b>	<b>Adults Forecast Preseason</b>	<b>Revised Adults Forecast</b>	<b>Broodstock Requirements</b>	<b>Harvestable Chinook</b>	<b>NPT Share</b>
Clearwater Hatchery	15,246	3,385	2,100	1,285	643
Dworshak National	9,343	1,704	1200	504	252
Kooskia National	5,395	941	600	341	171
NPTH-unclipped, non-rack ret			(180)		0
IDFG Broodstock for NPTH			400		0
Subtotal Clearwater	29,984	6,430	4,300	2,130	1,065
South Fork Salmon	11,550	3,696	1,400	2,296	1,148
Pahsimeroi	2,014	653	540	113	57
Rapid River	21,058	5,000	2,400	2,600	1,300
Hells Canyon	2,709	600	0	600	300
Sawtooth	2,252	730	600	130	65
<p>* Predictions based on updated (5/17/05) run predictions using PIT Tag detections at the dams agreed to by the Nez Perce Tribe and Idaho Department of Fish and Game.</p> <p>Run of 18,300 at Lower Granite Run at 82,400 fish to River Mouth                      32%    Of Preseason Estimate</p>					



**Table 9. 2005 South Fork Salmon River System Updated Forecast at Lower Granite Dam.**

	Pre-season South Fork Salmon Forecast at Lower Granite	Updated Forecast assuming return will be 32% of Preseason at Lower Granite	Run Size Proportions	Assume 98% Conversion to Terminal Area
		0.32		
Hatchery Origin	11,550	3,696	0.84	3,622
Listed Supplementation	136	44	0.01	43
Wild/Natural				
Section 29*	104	42		
Section 28*	407	242		237
Section 27*	344	152		149
Section 26	716	222		218
Total Wild Natural	1,571	658	0.15	645
Listed Adults above Goat Cr.	1,024	328		321
Total Return		4,398	1.00	4,310

\* South Fork Salmon River sections 27-29 - below weir determined using average of sibling/redd estimate (IDFG) and redd/LGR estimate (SBT).

## **APPENDIX C**

### **Tribal Resource Management Plan Grande Ronde River Spring Chinook Salmon Fisheries**

# **TRIBAL RESOURCE MANAGEMENT PLAN**

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**Snake River Spring/Summer Chinook ESU  
Grande Ronde River Spring Chinook Salmon Fisheries**

**Prepared by**

**Confederated Tribes of the Umatilla Indian Reservation**

**Nez Perce Tribe**

**2004**

**Title.**

Tribal Resource Management Plan (TRMP)  
Snake River Spring/Summer Chinook ESU  
Grande Ronde River Spring Chinook Salmon Fisheries

**Responsible Management Agency.**

Agency: Confederated Tribes of the Umatilla Indian Reservation (CTUIR)  
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Agency: Nez Perce Tribe

**Date Completed.**

2004

**SECTION 1. *FISHERIES MANAGEMENT***

**General objectives of the TRMP.**

This plan provides a context, framework, guidelines and justification for development and implementation of annual spring chinook harvest strategies within the Grande Ronde Basin in a manner that does not jeopardize the survival and recovery of listed spring chinook in the Snake River ESU. The plan encompasses all potential tribal and sport fisheries which target listed spring chinook salmon within the Grande Ronde River Basin. The plan describes a maximum allowable combined tribal and sport harvest scenario within given projected run sizes by tributary and assumes a 50/50 harvest sharing within basin.

**List of the “Performance Indicators” for the management objectives.**

Performance indicators include fish population parameters used to assess the status of populations and the affect of the fishery, including:

1. Number and composition (origin and age) of chinook harvested within the basin.

2. Estimated fishery related incidental mortality of listed target and non-target fish in the basin
3. Number and composition (origin and age) of chinook intercepted at trapping locations and estimated on the spawning grounds within the basin
4. Accuracy of pre-season run projections
5. Level of chinook angler effort within the basin
6. Level of compliance with fishing regulations

**Description of the relationship and consistency of harvest management with artificial propagation programs.**

The Grande Ronde River flows through Oregon and Washington and enters the Snake River at RM 168. The Grande Ronde River supports runs of summer steelhead, spring chinook and fall chinook. The Grande Ronde Basin once supported large runs of chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950's (COE 1975). Natural escapement declines in the Grande Ronde Basin have paralleled those of other Snake River tributaries. A major reason for these declines has been attributed to construction of the four lower Snake River dams. In order to offset these losses, the Lower Snake River Compensation Program (LSRCP) was authorized in 1976. The compensation identified for the Grande Ronde Basin under LSRCP was to return 5,856 spring chinook adults to the area above the four lower Snake River dam projects (Herrig 1990). This compensation goal included fish returning to hatchery racks, natural spawning areas, and fisheries. In order to meet this compensation goal, Lookingglass Hatchery (LFH) was constructed on Lookingglass Creek and became operational in 1982.

Despite these hatchery programs, natural spring chinook populations continued to decline resulting in the National Marine Fisheries Service (now known as NOAA Fisheries) listing Snake River spring/summer chinook salmon as "threatened" under the federal Endangered Species Act on April 22, 1992. Escapement levels in the Grande Ronde Basin dropped to alarmingly low numbers in the mid 1990's. This continued declining population trend raised concern that Grande Ronde River spring chinook salmon were in imminent danger of extinction. A total of 15, 4 and 16 redds were observed in Catherine Creek, the upper Grande Ronde River and Lostine River in 1994. In 1995, 20, 7 and 11 redds were observed in those same streams. These levels fell well below historical annual counts that exceeded 200 redds in Catherine Creek and 100 redds in the Lostine River in the late 1980's and the over 100 redds counted in the upper Grande Ronde River as late as 1992. In response to this precipitous decline in population levels, Bonneville Power Administration (BPA) funded the initiation of captive broodstock programs for these three stocks in the late 1990's to conserve these populations and preserve future options for recovery and mitigation. Along with these captive broodstock programs, the LFH hatchery program was converted to endemic broodstocks in order to better meet LSRCP mitigation goals.

In order to coordinate these endemic captive brood and conventional production programs, the Grande Ronde Spring Chinook Hatchery Management Plan (GRSCHMP) was developed and agreed upon by co-managers in 2002. The plan laid out juvenile production, adult disposition, and weir management details for the four Grande Ronde Basin tributaries involved with LFH production (Lostine River, Catherine Creek, Upper Grande Ronde River and Lookingglass Creek). Although detailed harvest specifics were not included in the plan, harvest was identified as an objective for the program in all four tributaries. All of the captive brood hatchery production is externally marked with an adipose fin clip to allow for evaluation, weir management, and fisheries options.

Although the Grande Ronde spring chinook hatchery program is currently absorbing a conservation and recovery roll, hatchery production remains consistent with LSRCP harvest mitigation levels. As a result of the large hatchery production and relatively lower natural productivity it is expected that hatchery fish will significantly dominate run composition as the hatchery program reaches production objectives. This plan allows the use of harvest as a tool to assist in the management of hatchery and naturally produced spawner composition in tributary areas. Harvest as described in this plan will be used to; 1) reduce the risk of negative hatchery program affects, 2) improve the chances of meeting current hatchery program conservation and recovery objectives and 3) address harvest objectives outlined in the LSRCP.

**General description of the relationship between the TRMP objectives and Federal tribal trust obligations.**

Upriver spring chinook are subject to Federal tribal trust obligations and impacts on upriver spring chinook stocks are jointly managed by the four Columbia River treaty Indian tribes, the federal government, and the states of Oregon, Washington, and Idaho under continuing court jurisdiction in *U. S. v. Oregon*.

**TRMP area(s).**

**Description of the geographic boundaries of the management area of this TRMP.**

The plan encompasses the entire Grande Ronde River Basin (Fig.1).

**Description of the time periods in which fisheries occur within the management area.**

This fisheries plan is intended to provide guidance for spring chinook fisheries in the Grande Ronde Basin until superseded by a new plan. Fisheries will occur during the months of May through early August as appropriate to produce harvest levels up to those outlined in this plan. Although, fisheries may be curtailed at anytime to avoid harvest levels that exceed those prescribed by this plan.

**Listed salmon and steelhead affected within the Fishery Management Area specified in section 1.2.**

*Spring Chinook*

Historically, spring chinook spawned in the mainstem and headwater areas throughout the Grande Ronde Basin (GRSS 2001). Currently, there are five core populations identified within the basin. Three of these populations are targeted for supplementation (Catherine Creek, Lostine River, and Upper Grande Ronde River) and two populations are managed solely for natural production (Minam River and Wenaha River). Another major population in the basin, Lookingglass Creek, was extirpated in the early 1980's due to the construction and operation of LFH. Efforts to reestablish a naturally spawning population in upper Lookingglass Creek utilizing Catherine Creek stock is ongoing. This TRMP specifically focuses on the affects to the core populations in Catherine Creek and the Lostine and upper Grande Ronde rivers.

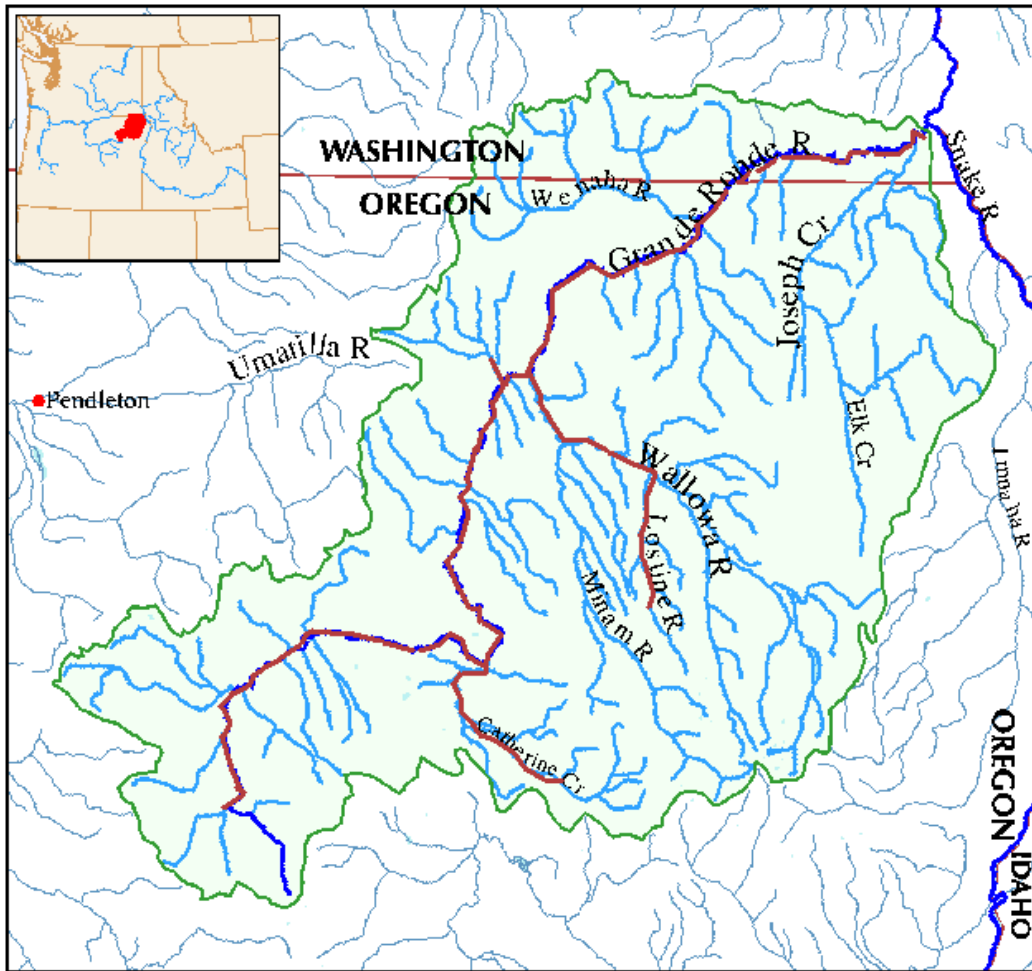


Figure 1. Map of the Grande Ronde Basin showing the TRMP area and potential fisheries locations (indicated in red).

Adult Snake River spring chinook enter the Columbia River in March through May. Movement into summer holding areas ranges from May through August. Age 4 fish typically dominate returns to the Grande Ronde Basin. Spawning occurs from early August through September and generally peaks in late August. Emergence begins in January and extends through June. Fry expand their rearing distribution in the summer. The extent and direction of fry movement depends on environmental conditions. Fall pre-smolt migrations occur in some populations. Juveniles typically rear in tributary areas for over one year and smolt the following spring. Smolt migration can begin as early as January and extend through late June.

Summer steelhead - Grande Ronde basin summer steelhead are typical of A-run steelhead from the mid-Columbia and Snake basins. Most adults returning to the Grande Ronde basin do so after one year of ocean rearing (60%). The remainder consists of two-salt returns with an occasional three-salt fish. Females generally predominate with a 60/40 sex ratio on average. Returning adults range in size from 45 to 91 cm and 1.4 to 6.8 kg. Adults generally enter the Columbia River from

May through August subsequently entering the Grande Ronde River from September through April. Adults utilize accessible spawning habitat throughout the Grande Ronde Basin. Spawning is initiated in March in lower elevation streams and spring-fed tributaries and continues until early June in higher elevation “snowmelt” systems. Juveniles utilize a wide range of habitats throughout the basin. Most naturally produced smolts migrate after rearing for two years. A much lower percentage migrates after one or three years. Smolt outmigration extends from late winter until late spring. Peak smolt movement is associated with increased flow events between mid-April and mid-May (Anne Setter, ODFW, personal communication). Currently there are no hatchery steelhead programs in the upper Grande Ronde River basin.

*Bull trout* – Both fluvial and resident life history forms of bull trout inhabit the Grande Ronde River and a number of tributaries. Habitat conditions and influence of introduced brook trout vary widely across the basin and affect bull trout productivity in some areas. As a result, basin bull trout populations vary from areas of relative strength in wilderness streams where brook trout are not currently present to areas where habitat condition and/or interaction with brook trout result in substantially depressed bull trout productivity. Fluvial adults migrate into headwater areas during the summer and early fall after over-wintering in mainstem tributaries and the Snake River. Spawning for both resident and fluvial adults occurs in September and October. Fry emerge in during the spring. Juvenile rearing is restricted to headwater areas by increasing water temperatures downstream.

**Description of “critical” and “viable” thresholds for each population (or management unit) consistent with the concepts in the technical document “Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units.”**

Limited guidance has been provided by NOAA Fisheries on fish numbers corresponding to critical and viability thresholds. They discuss hypothetical risks related to genetic processes effective at an annual spawning population size ranging from 50 to several thousand individuals. They also suggest that spawner numbers of 200-250 to 1,100-1,375 per year might be considered “safe” for spring/summer chinook (McElhany et al. 2000). As part of the original Section 10 Captive Brood Permit Application (ODFW 1995) a critical threshold of 150 spawners per year was identified for Catherine Creeks, Lostine River and the upper Grande Ronde River spring chinook populations. Spawner numbers of 150 or greater appear sufficient to avoid detrimental short term genetic and demographic effects.

Viable population thresholds for these populations have not been determined as of yet. Based on the NOAA Fisheries Viable Salmonid Populations guidelines, an interim population viability standard was developed based on a generally increasing population trend and expected escapements sufficient to identify population capacity and productivity with an effective monitoring plan. Long term viability thresholds would include average spawner abundance greater than 50% of subbasin capacity where capacity is defined based on the smaller of replacement spawner abundance (i.e. the intersection of the stock recruitment curve and the 1:1 replacement line) or spawner number at maximum recruitment and would include a productivity standard equivalent to a long term average replacement rate of 1.0 (i.e. a stable population size). Information to determine a viable threshold level based on these parameters is not currently available. The Technical Recovery Team is currently developing viable threshold levels for these populations. However, *U.S. v. Oregon* subbasin production reports for these tributaries (Carmichael and Boyce 1986) identified habitat capacities of 928 spawners for Catherine Creek, 1,716 spawners in the Lostine River and 804 spawners for the upper Grande Ronde River based upon historic high spawner numbers. Utilizing these figures as estimates of sub-basin capacity, an abundance level equal to 50% of subbasin capacity would produce a viable threshold of 464 for



Catherine Creek, 858 for the Lostine River and 402 for the upper Grande Ronde River. Viable threshold for Lookingglass Creek using this calculation method would be 502 spawners (Table 1). However, the *U.S. v. Oregon* sub-basin production reports estimates of spawner capacity were developed using peak spawner numbers and are generally agreed to represent an overestimate of capacity from a sustainable population perspective.

Table 1. List of the natural fish populations, “Viable Salmonid Population” thresholds, and associated hatchery stocks included in this TRMP.

Natural Populations or Management Units	Critical Threshold (abundance)	Substitute Viable Threshold (abundance)	Associated hatchery stock(s)	Hatchery stock essential for recovery? (Y or N)
Catherine Creek	150 spawner/yr	464 spawners/yr	Catherine Creek endemic	Y
Lostine River	150 spawner/yr	858 spawners/year	Lostine River endemic	Y
Upper Grande Ronde River	150 spawners/yr	402 spawners/yr	Grande Ronde endemic	Y
Lookingglass Cr.	150 spawners/yr	502 spawners/yr	Catherine Creek endemic	Y/N

**Description of the current status of each population (or management unit) relative to its “Viable Salmonid Population thresholds” described above. Include abundance and/or escapement estimates for as many years as possible.**

#### Catherine Creek

The Catherine Creek population dropped to a very low level in 1994 with 15 redds counted in the spawning area. This level was well below the highest historically recorded redd counts of 246 in 1953, 225 in 1987, and 212 in 1988. Redd levels remained low with counts of 12 to 46 redds from 1995 to 2000. In 2001 the redd count increased significantly to 133 redds. Weir counts that year estimated the adult population at 397 fish, all of which were natural origin. The first adult returns from the endemic hatchery program occurred in 2002. Redd count and population estimates in Catherine Creek have continued to increase each of the last two years. Composition of the return was 52.8% hatchery origin in 2002 and 54.3% in 2003. Abundance and redd counts have been on an increasing trend the last three years. Escapement estimates have been well above the critical threshold level and are approaching the estimated viable threshold number. It is anticipated that escapement estimates for 2004 will exceed the critical threshold level and could approach the viable threshold level. These estimates are presented in Appendix A. Spawner abundance in Catherine Creek is limited by the adult sliding scale, otherwise it is anticipated that it would exceed the viable threshold level in 2004. Redd counts and estimated population sizes since 1988 are included in Table 2.

#### Lostine River

Consistent with population trends observed across the Snake River and Grande Ronde basins, spawner numbers as indicated by redd counts achieved a modest rebound in the mid to late 1980s only to retreat to alarmingly low levels by the mid 1990s. Since that time naturally produced spawner numbers have increased and naturally spawning hatchery fish have supplemented

spawners to the point that on the order of several hundred redds were observed in the Lostine in 2002 and 2003 (Table 2).

#### Upper Grande Ronde River

The Upper Grande Ronde River population dropped to a very low level in 1989 with no redds counted in the spawning area. Redd counts again dropped to very low levels in the mid to late 1990's with only four redds counted in 1994, seven in 1995, and no redds in 1999. These levels are well below the highest historically recorded redd counts of 304 in 1968, 185 in 1987, 116 in 1988, and 116 in 1992. Redd levels have remained low with counts of 0 to 29 redds from 1996 to 2003. The return in 2001 was estimated at 34 fish of which 100% were natural origin. The first adult returns from the endemic hatchery program occurred in 2002. The population estimate for the upper Grande Ronde River has increased each of the last two years and the redd count number increased significantly in 2003. Composition of the return was 94.4% natural origin in 2002 and 93.7% in 2003. Abundance and redd counts have generally increased the last three years. Escapement estimates have remained below the critical and viable threshold levels. However, it is anticipated that escapement estimates for 2004 will exceed the critical threshold level and may also surpass the viable threshold level. These estimates are presented in Appendix A. Redd counts and estimated population sizes since 1988 are included in Table 2.

#### Lookingglass Creek

The endemic stock of spring chinook salmon in Lookingglass Creek was functionally extirpated by 1984. Since that time a mixture of unmarked and hatchery returns of Carson and Rapid River stock releases from Lookingglass Hatchery have spawned in Lookingglass Creek. Currently, remnant returns of Rapid River stock spring chinook salmon occur annually in Lookingglass Creek and are anticipated to continue through 2007. These fish are unmarked fish but are not considered part of the listed ESU by NOAA Fisheries (Herb Pollard, NOAA Fisheries, personal communication). These Rapid River stock fish are being removed from the basin and are being replaced with releases of endemic spring chinook from Catherine Creek stock.

**Table 2.** Annual redd counts and estimated adult spawning escapement from Catherine Creek, the Lostine River and the upper Grande Ronde River. These are minimum counts and do not reflect spatial or temporal expansions.

Year	Catherine Creek		Lostine River		Upper Grande Ronde	
	Redds	Est. Adult Esc. <sup>1</sup>	Redds	Est. Adult Esc. <sup>1</sup>	Redds	Est. Adult Esc. <sup>1</sup>
1986	94	301	61	195	48	154
1987	225	720	95	304	185	592
1988	212	678	182	582	116	371
1989	49	157	53	170	0	0
1990	40	128	11	35	32	102
1991	20	64	28	90	14	45
1992	49	157	28	90	116	371
1993	84	269	73	324	103	330
1994	15	48	16	51	4	13
1995	20	64	11	35	7	22
1996	12	38	27	86	22	70
1997	46	105	48	161	19	59
1998	34	101	35	166	25	84
1999	40	54	57	71	0	4
2000	34	44	64	341	20	23
2001	133	397	131	376	15	34

2002	158	443	209	682	14	60
2003	167	477	194	657	29	100

<sup>1</sup> 1986 – 1996 escapement estimates equal redd number times 3.2 fish / redd, mark recapture estimates 1997 on.

## Harvest Regime

This plan prescribes discrete tributary adult harvest rates for hatchery and naturally produced spring chinook based on projected adult returns to Catherine and Lookingglass creeks and the Lostine and upper Grande Ronde rivers via the harvest matrix described in Figure 2. Jack chinook return will not be included in the preseason run projections used to set harvest rates and jacks caught in the fishery will not be included as part of harvest estimate. Harvest scenarios set forth in the plan are designed to meet natural escapement and brood stock needs and to provide for balancing of run components. The plan provides a general description of fishery timing and location options that may be applied to achieve harvest prescribed in the plan. However, details of length of season, bag limits and fishery locations proposed to achieve harvest levels suggested by this plan will be submitted for concurrence to NOAA Fisheries in annual fishery plans as run projections are made and harvest limits set. Both listed hatchery and naturally produced spring chinook return to the TRMP management area. In order to ensure sustainability of the core populations within the basin, including natural spawning populations in the Minam and Wenaha rivers, the harvest matrix is designed with a conservative allowable non-fin-clipped harvest rates as a default. In many cases lower non-fin-clipped harvest rate limits will restrict access to harvestable hatchery produced fish. Wild fish harvest impacts under this plan will be shared between tribal and sport fishers in a manner consistent with current Columbia River harvest sharing agreements, 85% tribal and 15 % sport.

**Provide escapement objectives and/or maximum exploitation rates for each population (or management unit) based on its status.**

The GRSCHMP has established agreed upon minimum escapement objectives of 150 adults for three of the affected tributary areas, Catherine Creek, the Lostine River and upper Grande Ronde River and 100 fish for Lookingglass Creek. However, an adult escapement approximating the substitute viable threshold described in Table 1 (500 fish $\pm$ ) is a level above which managers will consider harvest as a tool for adjustment of hatchery/natural ratios. Above this harvest escapement level, demographic risk to the population becomes less an issue and risk of unintended impacts of the hatchery program an increased concern. Maximum allowable harvest rates prescribed by this plan for natural and hatchery components of runs at various expected levels are outlined in Figure 2.

**Description of how the fisheries will be managed to conserve the weakest population or management unit.**

Harvest decisions outlined in this plan are intended to occur at a tributary level. Individual tributary run projections and fishery access within tributary reaches provides managers the ability provide harvest opportunity discretely among the tributaries. Given the number of tributaries involved in the hatchery program, a wide range of potential fishery configurations exist; from any one of the tributaries individually, to some combination of tributaries, to all tributaries plus some type of mixed stock fishery. However, mixed stock fisheries, in the mainstem Grande Ronde River for instance, would be limited in impact to the level of the weakest stock affected by the fishery. If tributary target harvest rates are achieved within a mixed stock fishery no further harvest would occur within that tributary. Closing one tributary to harvest would not preclude further harvest in other tributaries. In-season fishery monitoring will provide critical real-time information to decisions processes regarding fishery status.

**Demonstrate that the harvest regime is consistent with the conservation and recovery of commingled natural-origin populations in areas where artificially propagated fish predominate.**

Hatchery programs within the Grande Ronde basin have recently proven to be very successful in returning spring chinook to the basin. The productive capacity of the hatchery programs can result in large numbers of returning hatchery adults and hatchery spring chinook can significantly outnumber naturally produced chinook within a given year.

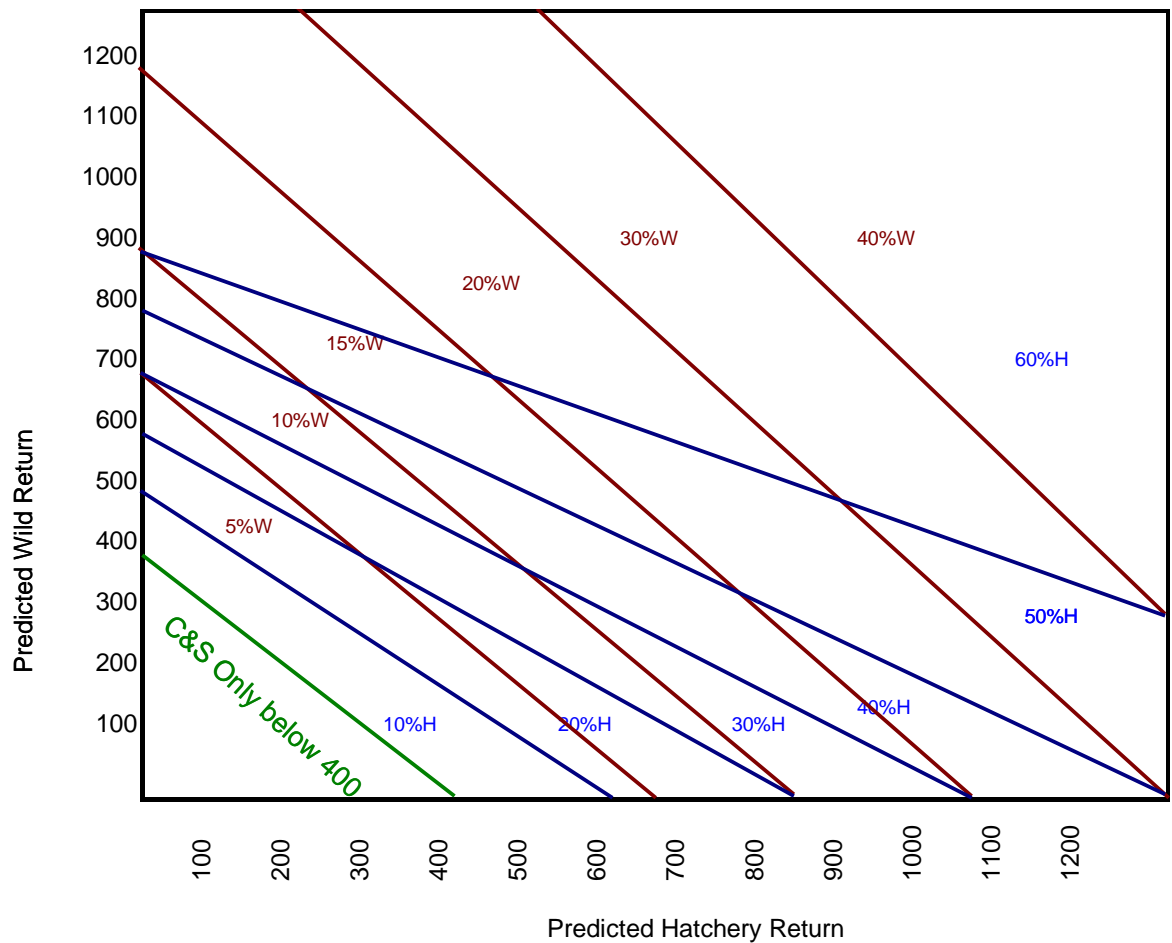


Figure 2. Proposed harvest rates for marked (H) and unmarked (W) adult spring chinook at various projected adult run sizes into Catherine and Lookingglass creeks and the Lostine and upper Grande Ronde rivers.

Grande Ronde basin spring chinook management strategies outlined in the GRSCHMP strive to avoid demographic risk to populations at low productivity and escapement levels by using hatchery adults to supplement natural spawner numbers. However, the plan also recognizes the potential impacts of hatchery influence on natural productivity and attempts to address that risk through management of hatchery and natural spawner ratios. While strategies to accomplish this and the level of interaction allowed between hatchery and natural spawners varies across the basin, management in all tributaries recognizes a preference for higher level of contribution by naturally produced fish to the spawner population when escapement level offers some flexibility. Harvest of hatchery origin adults returning to Grande Ronde tributaries offers managers a tool for regulating hatchery/natural escapement percentages when demographic risk to populations is not an issue. Harvest can help reduce the imbalance in anticipated hatchery/natural return ratios at the weirs and on spawning grounds.

The harvest matrix providing guidance for fisheries in the Grande Ronde basin, Figure 2, employs generally conservative harvest rates for all chinook at lower projected return levels and gradually ramps harvest up as expected returns increase. Harvest rate for any tribal fishery below a combined run size of 400 fish (indicated as C and S in Figure 2) would be limited to a 2%

combined harvest rate. The harvest matrix also prescribes preferential harvest of the hatchery run components in most situations. As a result, harvest scenarios resulting from run projections that are weighted toward hatchery fish will depend upon some level of harvest selectivity in order to accomplish the desired outcomes.

### **Annual Implementation of the Fisheries**

Given a run size capable of supporting fishery harvest and following the guidelines herein, Grande Ronde basin co-managers will provide to NOAA Fisheries a proposal for fisheries implementation based upon run projections as they become available in winter and spring. Since this plan outlines maximum allowed harvest rates for individual run components actual annually applied harvest rates may be adjusted downward through co-manager agreement. The annual fishery proposal will include details of expected hatchery and natural run strength by tributary, projected harvest rate based on this plan and a description of fishery bag limits, location and timing. In addition it will include a summary of the expected outcomes for hatchery broodstock, additional surplus and natural spawner composition as outlined in Table 2 for each tributary. Table 2 provides an example application of estimated run strength, associated plan defined harvest rate, and escapement outcomes given some assumptions about the level of tribal fishery selectivity. Description of expected fishery outcomes links harvest and with management strategies described in the GRSCHMP. Once an annual fishery authorization or proposal concurrence is received from NOAA Fisheries modification of harvest strategies, in-season adjustments and fishery closures may occur in response to updated run projections from TAC, PIT tag data from Lower Granite Dam and in-basin weir returns.

## **SECTION 2. EFFECTS ON ESA-LISTED SALMONIDS**

### **2.1) Description of the biologically-based rationale demonstrating that the fisheries management strategies will not appreciably reduce the likelihood of survival and recovery of the affected ESU(s) in the wild.**

Harvest strategies outlined in this plan are designed to allow near viable threshold seeding (as described above) of natural spawning habitat before considering harvest. Harvest rates prescribed by this plan are scaled to estimated escapement and provides for increasing harvest as expected run sizes increases. The plan calls for preferentially harvesting available hatchery chinook under most escapement scenarios. While one outcome of the plan is to provide tribal and sport harvest, its intent is to provide co-managers with a much needed tool to address potential imbalances between natural and hatchery produced chinook escaping to spawn. Harvest strategies are applied by individual tributary in order to protect weak stocks while taking advantage of harvest to aide management where needed.

#### **2.1.1) Description of which fisheries affect each population (or management unit).**

Fisheries described herein may affect hatchery and wild components of any or all populations within the Grande Ronde basin in a given year.

#### **2.1.2) Assessment of how the harvest regime will not likely result in changes to the biological characteristics of the affected ESUs.**

As described in the harvest matrix, harvest will only be considered when projected hatchery and wild returns achieve levels that provide for substantial seeding of natural habitat and hatchery broodstock needs. The plan's intent is to focus harvest on hatchery run components when they are not essential for conservation and recovery and only prescribes significant levels of wild fish harvest when large numbers of naturally produced fish are expected to return. Harvest strategies will prescribe fishery locations and times that reduce temporal fishery selectivity when possible, although early curtailment of fisheries may result in some selective affect. Harvest allowed under this plan is intended to increase protection for the natural spawning population against inadvertent loss of diversity and productivity due to hatchery influence.

**2.1.3) Comparison of harvest impacts in previous years and the harvest impacts anticipated to occur under the harvest regime in this TRMP.**

Harvest proposed under this plan would be the first implemented in the Grande Ronde basin outside of Lookingglass Creek since the 1970's. Harvest in recent years has been limited to sport and tribal fisheries for unlisted Rapid River stock hatchery returns to Lookingglass Creek. Implementation of this plan could result a substantial increase in harvest number and area of impact within the Grande Ronde basin relative to that occurring recently.

***Table 2. Example of data and projections to be provided for individual tributaries as part of the annual harvest plan outlining; harvest targets for hatchery and wild components, tribal and sport harvest sharing, broodstock needs and resulting natural spawner composition.***

Grande Ronde River Spring Chinook Run Projections and Distribution				
Required inputs identified in blue				
Projections, Allocations and Predicted Results		Wild	Hatchery	Total
<u>Projections and Impact Targets</u>				
Projected run		500	1,000	1,500
% composition		33.3%	66.7%	100.00%
% Combined Harvest Impact Target		15.0%	30.0%	25.0%
Combined Harvest Impact Target		75	300	375
<u>Actual Expected Harvest Rates</u>				
Tribal Harvest Rate (Wild harvest / hatchery harvest) =	1.000	12.5%	12.5%	12.5%
Tribal Harvest		63	125	188
Sport Fishery Harvest Rate (Wild mortality / hatchery harvest rate) =	0.112	2.0%	17.8%	12.5%
Sport Fishery Impact (11.2% handling mortality)		10	178	188
Combined Harvest Impact Actual		72	303	375
% Combined Harvest Impact Actual		14.5%	30.3%	25.0%
<u>Expected Outcomes</u>				
Post Harvest Escapement (line 1 - line 7)		425	700	1,125
Broodstock (per AOP)		20	80	100
Broodstock Composition		20%	80%	100%
Post Broodstock Escapement (line 12 - line 13)		405	620	1,025
Available for Outplant or Other Use (line 15 (hatchery) - line 15 (wild))(50/50)		0	215	215
Natural Spawners (line 15 - line 16)		405	405	810
Composition of Natural Spawners		50%	50%	100%

**2.1.4) Description of additional fishery impacts not addressed within this TRMP for the listed ESUs specified in section 1.3. Account for harvest impacts in previous year and the impacts expected in the future.**

Spring chinook fisheries have been conducted in the mainstem Columbia River since 2001 and are controlled under *U.S. v. Oregon*. Sport fisheries are limited to identifiable hatchery fish (adipose clip) and are allowed only an incidental take of natural fish. Tribal fisheries may take natural or hatchery adults. A sliding scale for apportioning mainstem fishery impacts to natural populations based on run size was agreed to by the parties of *U.S. v. Oregon* as part of the 2001-2003 Interim Management Agreement for Spring Chinook. Based on the sliding scale, the allowable tribal fishery impact on natural spring chinook has ranged from 11%-13% during that period and the sport fishery impact has been limited to a 2% rate. The allowable harvest impacts for 2004 based on preseason run forecasts are anticipated to be 13% for tribal fisheries and 2% for sport fisheries. Actual impact rates for 2001 as calculated by the *U.S. v. Oregon* Technical Advisory Committee estimated that tribal fisheries had a 13.1% impact rate on the natural upriver population (above Bonneville Dam) and the impact on wild fish in non-treaty mainstem fisheries was estimated at 1.6%. For coded wire tag groups in 2001, 6% of the total recoveries were in Zone 6 tribal fisheries, while 26% were in mainstem sport and commercial fisheries.

### **SECTION 3. MONITORING AND EVALUATION**

#### **3.1) Description of the specific monitoring of the “Performance Indicators” listed in section 1.1.3.**

Monitoring of fisheries within the TRMP management area will be conducted using statistical catch and handle estimates in stratified, random, roving creel surveys conducted in the areas of allowed harvest. In addition, spot checks and in-season phone surveys of known tribal fishers will be conducted by CTUIR and NPT for the tribal fisheries. Information to be collected during statistical creel surveys will include location, gear type, number harvested, catch composition (including marks and biological data), and effort. Follow-up post-season phone surveys of tribal fishers will be conducted and data from volunteer returns of sport license salmon tags will be collected. Monitoring will provide estimates of catch and harvest for marked and unmarked chinook by tributary, estimates of tribal and sport effort by tributary and estimates of resulting spawner escapement and composition.

#### **3.2) Description of other monitoring and evaluation not included in the Performance Indicators (section 3.1) which provides additional information useful for fisheries management.**

Information from Columbia River fisheries and Columbia and Snake rivers dam counts will be utilized to assess impacts from mainstem fisheries on Grande Ronde natural and hatchery run components as the season progresses.

#### **3.3) Public Outreach**

Public notice of Tribal policy approved tributary spring chinook fishing regulations will be sent to a comprehensive list of tribal fishers and published in the tribal newspapers. In addition, the regulations will be posted in tribal offices. A special pamphlet describing the sport fishery will be published and distributed to local vendors in Union, Wallowa and surrounding counties. It will also be available at local ODFW offices, at Lookingglass Hatchery, and posted in the fishery area. In addition, the fishery will be publicized in local newspapers.

#### **3.4) Enforcement**



The Oregon State Police will incorporate the Grande Ronde sport fisheries into their enforcement planning. CTUIR Fish and Wildlife officers will provide enforcement for the tribal fisheries. Enforcement contact information will be used to develop estimates of regulation compliance (Performance Indicator).

### **3.5) Schedule and process for reviewing and modifying fisheries management.**

A post-harvest review following each harvest season will be conducted and a post-season report will be produced. The review and report will be used to assess the fisheries success and identify potential modifications to improve fisheries planning.

#### **3.5.1) Description of the process and schedule that will be used on a regular basis (e.g. annually) to evaluate the fisheries, and revise management assumptions and targets if necessary.**

The post-season report outlining fisheries characteristics as they relate to performance indicators will be completed following each fishery season. The report will be utilized to evaluate fishery impacts and options to improve performance of run projections, harvest criteria, fishery logistics, monitoring and enforcement.

#### **3.5.2) Description of the process and schedule that will occur every X years to evaluate whether the TRMP is accomplishing the stated objectives. The conditions under which revisions to the TRMP will be made and how the revisions will likely be accomplished should be included.**

Fishery outcomes relative to performance indicators will be evaluated annually and a detailed review will occur after five harvest cycles. Modifications to the plan will occur as needed.

## **SECTION 4. CONSISTENCY OF TRMP WITH PLANS AND CONDITIONS SET WITHIN ANY FEDERAL COURT PROCEEDINGS**

This TRMP has been developed in conjunction with ODFW and will be consistent with on-going proceedings in *U.S. v. Oregon*. A 50:50 harvest allocation principal will be adhered to in the fishery with neither the tribal nor sport fishery harvesting over 50% of the available surplus.

## REFERENCES

- Carmichael, R. and R. Boyce. 1986. Grande Ronde River Spring Chinook Production Report, *United States vs. Oregon*. Oregon Department of Fish and Wildlife. Portland, Oregon.
- Grande Ronde Subbasin Summary (GRSS). 2001. Grande Ronde Subbasin Summary (Draft work plans). Submitted to the Northwest Power Planning Council by the Columbia Basin Fish and Wildlife Authority, November 30, 2001.
- Herrig, D.. 1990. A Review of the Lower Snake River Compensation Plan Hatchery Program. Lower Snake River Compensation Plan Office. US Fish and Wildlife Service, Boise, Idaho.
- McElhany, P., M. H. Ruckelshaus, M. J. Ford, T. C. Wainwright, and E. P. Bjorkstedt. 2000. Viable salmonid populations and the recovery of evolutionarily significant units. NOAA Technical Memorandum NMFS-NWFSC-42. Seattle.
- ODFW 1995. NOAA Emergency Section 10 Permit Application. Grande Ronde Basin Spring Chinook Salmon Endemic Supplementation Program. Permit Holder: ODFW. Permit Number: Endangered Species Permit No. 1011. Permit Contact: Richard W. Carmichael. Contributors: ODFW, NMFS, NPT, CTUIR.
- U.S. Army Corps of Engineers (COE). 1975. Lower Snake River Fish and Wildlife Compensation Plan. U.S. Army Corps of Engineers, Special Report, Walla Walla, Washington.
- Zimmerman, B., B. Ashe, S. Patterson, and B. Smith. 2002. Grande Ronde Spring Chinook Hatchery Management Plan.

## **APPENDIX D**

### **2005 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin**

**2005 NEZ PERCE TRIBAL MANAGEMENT PLAN  
FOR SNAKE RIVER SPRING/SUMMER CHINOOK  
IN THE IMNAHA RIVER SUBBASIN**

***Nez Perce Tribe***

**June 9, 2005**

## IMNAHA RIVER SUBBASIN

### Imnaha River

#### *Population Status*

Historically, the Imnaha River Subbasin supported healthy runs of spring/summer chinook salmon<sup>5</sup> - estimated at approximately 6,700 fish prior to the construction of the four Lower Snake River dams (USACE 1975). Peak escapement in recent history was estimated as ranging from 500 to 6,300 fish (Table 1 and Table 2). TAC has described that the resource managers agree the natural environment has been significantly under-seeded for the past thirty years (LeFleur, 2000).

**Table 1. Depicts returns for 1957 – 1978 (from ODFW 2001).**

Year	Estimated Return to River
1957	4,391
1958	1,548
1959	874
1960	2,070
1961	1,280
1962	1,382
1963	755
1964	1,380
1965	1,048
1966	1,261
1967	1,203
1968	1,420
1969	1,683
1970	976
1971	2,049
1972	1,884
1973	3,061
1974	1,529
1975	823
1976	701
1977	871
1978	2,291

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<sup>5</sup> A detailed discussion of the biology of Imnaha River chinook is presented in the Northeast Oregon Hatchery Master Plan (Ashe et al., 2000). Chinook salmon returning to the Imnaha River fall into both the spring chinook and summer chinook migration timing categories. Fish begin entering the Imnaha River in late-April with peak entry in mid-to-late June. Most spring/summer chinook salmon are in the Imnaha River by the end of July. Presently, most salmon in the Imnaha River spawn from the Blue Hole to Crazyman Creek (RM 42.8). Some salmon have been observed spawning as far upstream as the lower reaches of the South Fork and as far downstream as Freezeout Creek (RM 29.4). Few spring/summer chinook salmon currently spawn in Big Sheep and Lick creeks. The majority of spawning in Big Sheep Creek currently occurs from RM 29.4 to RM 33.4. The majority of spawning in Lick Creek occurs in the upper 2.3 miles.

A detailed discussion of the biology of Imnaha River chinook is presented in the Northeast Oregon Hatchery Master Plan (Ashe et al, 2000).

### *Escapement Objectives*

Several escapement objectives have been established for the Imnaha River. The Columbia River Treaty Tribes' Tribal Recovery Plan (Wy-Kan-Ush-Mi Wa-Kish-Wit) defines an adult return goal of 5,740 fish, of which 3,800 are for natural production and 700 for harvest. Goals developed by co-managers in Imnaha Subbasin Plan (Nez Perce Tribe et al. 1990) were 5,770 total (3,820 for natural spawning, 1,240 for hatchery production, and 700 for harvest). NMFS suggested an interim abundance target for the Imnaha spawning aggregate at 2,500 fish in their Proposed Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia River (NMFS, 2002).

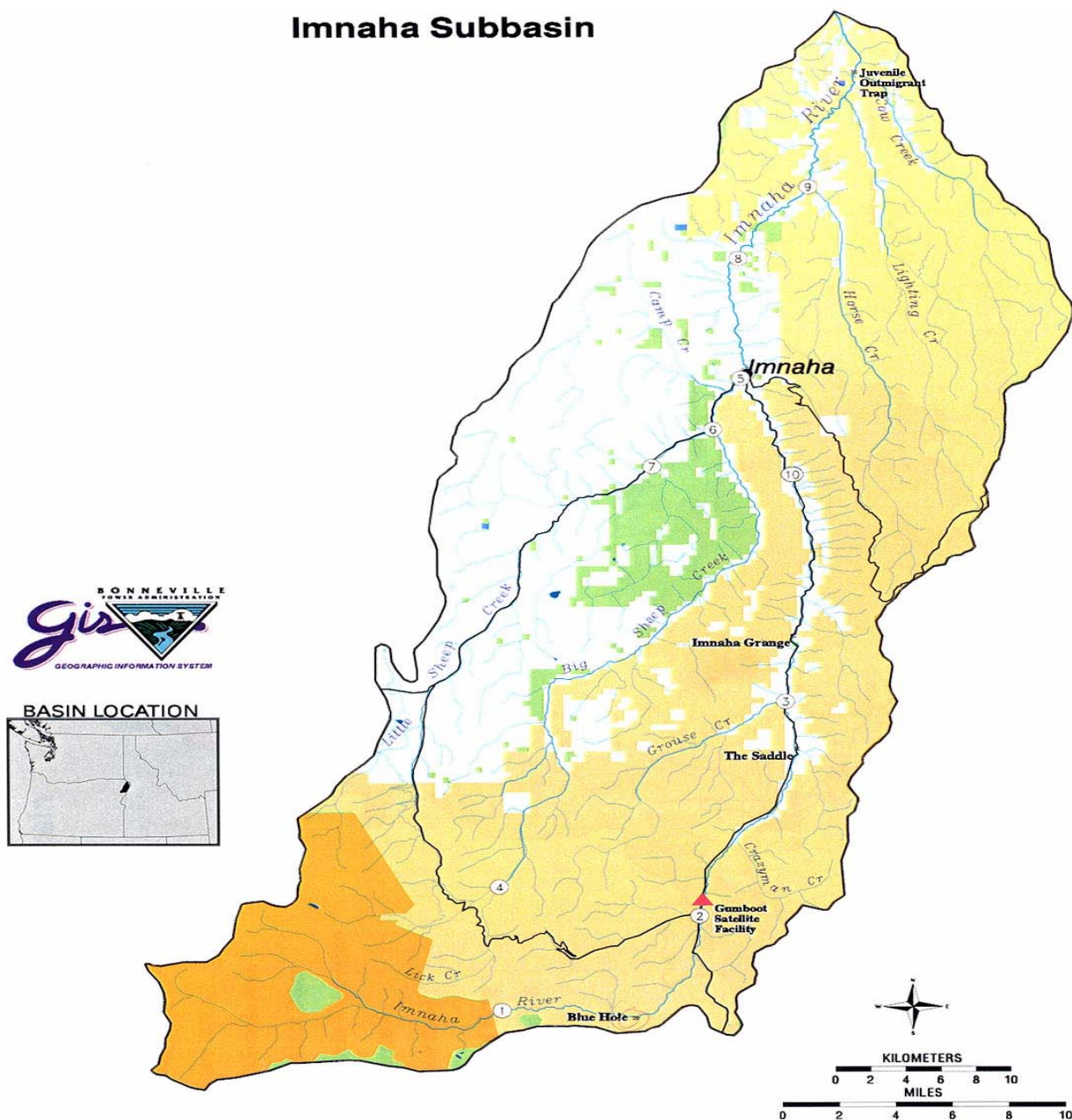
### *Hatchery Program*

A hatchery program was initiated in the Imnaha River in 1982, under the auspices of the Lower Snake River Compensation Plan, using local broodstock. This hatchery program (described in Ashe et al, 2000) has been refocused from a mitigation program to a conservation and restoration program which allows for potential harvest opportunities consistent with recovery efforts.<sup>6</sup> This hatchery program was developed using local broodstock; wild adults returning to the Imnaha River were collected to develop the hatchery broodstock. "Natural" adults (those resulting from parents spawning in the stream) have been incorporated into the hatchery broodstock every year.

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<sup>6</sup> Broodstock collection for the hatchery, as well as monitoring activities on the run, occur at a weir located just downstream of Gumboot Creek (Figure 1). Based on the 5-year average, an estimated 61% of the run is trapped at the weir, while the remaining 39% either spawns downstream of the weir, or passes upstream of the weir prior to its installation. Fish trapped at the weir are either released upstream of the weir to spawn naturally, taken for broodstock for the hatchery, or are outplanted to tributaries (Big Sheep and Lick creeks). Hatchery broodstock are transported to Lookingglass Hatchery for spawning and their eggs are currently transported to Oxbow and Irrigon hatcheries for incubation and rearing. Smolts are returned to the Gumboot facility for acclimation prior to release.

## Imnaha Subbasin



The program is operated specifically to address both demographic and genetic risks, and minimize the chance of extirpation and domestication selection. The broodstock management protocol ensures that hatchery and natural fish are incorporated into both the natural spawning and hatchery components. Electrophoretic analysis of Imnaha spring/summer chinook salmon by NMFS has determined that Imnaha River hatchery-produced fish did not differ from naturally-produced fish (Waples et al. 1993). As shown in Table 2, hatchery produced fish have contributed to the naturally spawning population annually since 1985. In addition, natural fish have been collected for hatchery broodstock annually since 1982.

**Table 2. Total Escapement, Number of Broodstock Collected, and Number and Origin of Natural Spawners in the Imnaha River (1979–2004).**

Year	Total Escapement	Broodstock Collected		Natural Spawners		Natural Spawners of Hatchery Origin (%)
		Natural	Hatchery	Natural	Hatchery	
1979*	192	0	0	192	0	0
1980*	125	0	0	125	0	0
1981*	307	0	0	307	0	0
1982	1,262	28	0	1,234	0	0
1983	990	64	0	926	0	0
1984	1,178	36	0	1,142	0	0
1985	1,844	115	14	1,573	142	8
1986	1,165	315	21	788	51	6
1987	644	83	22	484	55	10
1988	928	140	68	609	111	15
1989	697	105	187	297	108	27
1990	627	81	159	199	188	49
1991	959	51	262	198	448	70
1992	1,353	54	331	205	763	79
1993	1,724	58	394	430	842	66
1994	311	20	31	118	142	55
1995	432	38	30	204	160	44
1996	535	72	61	266	136	34
1997	517	23	149	129	216	63
1998	586	77	57	255	197	44
1999	1,676	22	254	287	1,113	80
2000	2,364	49	282	647	1,364	68
2001**	6,582	86	169	2,549	2,787	53
2002**	5,269	32	200	1,042	3,311	77
2003**	5,729	40	197	1,623	3,020	66
2004	2,823	55	157	384	1,037	73

Notes: Jacks are included in the estimates. Total escapement is the sum of total natural spawners estimated from redd counts and fish retained for hatchery broodstock.

\*Estimates prior to 1982 are based on redd counts above the location of the weir and not expanded for those fish spawning below the weir location.

\*\*Updated total escapement and corresponding distribution numbers by ODFW from those reported in previous TMPs. Brad Smith, District Fish Biologist.

Data sources: Parker (1997) and data from ODFW files, LaGrande office.



### *ESA Listed Population*

The National Marine Fisheries Service (NMFS) has listed several populations of Columbia River Basin salmon under the Endangered Species Act (ESA). In May 1992, NMFS listed the Snake River spring/summer chinook Evolutionarily Significant Unit (ESU) as threatened. This ESU includes all natural (non-hatchery) populations of spring and summer chinook in the tributaries in the Snake River upstream of the confluence of the Snake and Columbia rivers (excluding the Clearwater River). Additionally, as a result of NMFS' informal progeny policy, a number of hatchery fish released in these subbasins are also included in the ESU. In the Imnaha River, both natural- and hatchery-origin fish are considered listed.

### *Sliding Scale Management Strategy*

As a result of U.S. v. Oregon Dispute Resolution, the Nez Perce Tribe and the State of Oregon cooperatively developed a hatchery and harvest management plan for restoration of Imnaha River spring/summer chinook, using the Imnaha hatchery program. The management plan was submitted to NMFS in an ESA Section 10 Permit application in 1998 (ODFW 1998). The agreed to plan contains a sliding scale management strategy to define the allocation of the natural and hatchery fish that are trapped at the weir and appropriate harvest opportunities (tribal and non-tribal fisheries) based on levels of adult escapement (Table 3 and 4).

**Table 3. Sliding scale developed for allocation of Snake River spring/summer chinook salmon in the Imnaha River collected at the Gumboot Weir to natural spawning or hatchery production.**

Estimated total adult escapement to the Imnaha River mouth	Ratio of hatchery to natural adults at the mouth	Maximum % natural adults to retain for broodstock	Maximum % hatchery adults to retain for broodstock	Maximum % adults of hatchery released above the weir	Minimum % of broodstock of natural origin
<50	Any	0	0	a	NA
51-700	Any	50	≤50	a	a
701-1000	Any	40	a	70	20
1001-1400	Any	40	a	60	25
>1400	Any	30	a	50	30
NA – Not applicable.					
a – Percentages determined as a result of implementing other criteria, therefore not a decision factor.					
Source: ODFW 1998.					

**Table 4. Management guidelines.**

Escapement Level	Start Captive Brood Program	Collect for hatchery broodstock and spawn	Release to spawn naturally above weir	Outplant (hatchery fish only)	Harvest for Tribal Ceremonial Use	Harvest for Tribal Subsistence	Constraints on % of hatchery or natural for release or broodstock	Recreational Harvest
<300 for 2 consecutive years*	Yes	No	No	No	**	**	No	No
51-700	No	Yes	Yes	No	Yes	**	No	No
>700 (see criteria below)	No	Yes	Yes	Yes	Yes	Yes	Yes	**

Criteria and Priorities for fish trapped at the weir:

1. Retain natural adults at the maximum allowable percentage defined in the sliding scale up to that needed to achieve the egg take goal of 576,500 green eggs.
2. Retain hatchery adults to meet broodstock needs at the rate equal to the number allowable to meet the minimum percentage of broodstock that must be natural origin. Spawn all fish that are collected for broodstock.
3. Do not retain more than 320 (160 females and 160 males) adults for combined natural and hatchery broodstock.
4. Release hatchery fish above the weir up to the rate equal to the percentage of adults released above the weir that can be hatchery origin.
5. Hatchery fish that are excess to what is needed for broodstock and releases above the weir will be outplanted to Big Sheep and Lick Creek or harvested.
6. No more than 10% of males placed above the weir will be hatchery origin jacks. All other hatchery jacks will be spawned with the total hatchery jack contribution to fertilization not to exceed 10% of the eggs.

\*Co-managers would submit a modification to the existing permit application to initiate a captive broodstock component for the Imnaha program.

\*\* Decision would be made on a case-by-case basis.

### *Projected 2005 Return and Management*

The preseason projected return of Snake River spring/summer chinook salmon in the Imnaha River for 2005 was 2,699 adults (80% hatchery origin and 20% natural origin) and 1,152 jacks (73% hatchery origin and 27% natural origin) for a total of 3,851 fish.

The updated in-season projected return of Snake River spring/summer chinook salmon in the Imnaha River for 2005, based on ODFW evaluation of PIT tag returns to Bonneville Dam, is 2,152 adults (80% hatchery-origin and 20% natural-origin), or 56% of the preseason projection. The run composition is estimated to be 1,090 hatchery-origin and 274 natural-origin adult fish along with 635 hatchery-origin and 153 natural-origin jacks (Table 5) (Oregon, 2005). The 2005 anticipated number of fish allowed to spawn naturally in the Imnaha River is slightly greater than the previous year's actual natural spawners of 1,421 fish.

Sneke River fall chinook and sockeye are not present in this subbasin during the fishery and therefore will not be caught in any Imnaha River fishery. Impacts to steelhead are expected to be negligible. Spawning of steelhead generally occurs from late April to early June in the Imnaha River and therefore are not targeted in this fishery.

**Table 5. Projected returns of Snake River spring/summer chinook salmon in the Imnaha River in 2005 (ODFW Annual Operation Plan data).**

Component	Adults	Jacks	Total
Hatchery origin	1,090	635	1,725
Natural origin	274	153	427
Total	1,364	788	2,152

This Tribal Plan is intended to be an interim hatchery and harvest management plan for Snake River spring/summer chinook salmon in the Imnaha River for the 2005. Hatchery management activities will occur as identified in the sliding scale resulting from U.S. v. Oregon Dispute Resolution, incorporated in the section 10 permit #1128, and agreed to in the 2005 Annual Operating Plan (AOP) coordination. A longer term harvest and hatchery management strategy and plan is currently being developed by co-managers through the Northeast Oregon Hatchery planning process, U.S. v. Oregon and other forums.

*Application of the Tribal Management Plan*

Applying the sliding scale and the proposed harvest strategy to the revised 2005 return would result in the distribution of fish as shown in Table 6.

**Table 6. Distribution of Snake River spring/summer chinook salmon returning to the Imnaha River in 2005 (includes jacks and adults).**

Area	Natural	Hatchery	Total
To River Mouth	427	1,725	2,152
Harvest	9	173	182
Number of Fish Post Harvest	418	1,552	1,970
To Weir (.727% of post harvest return)	304	1,129	1,433
Hatchery Broodstock	62	146	208
Outplant to Big Sheep and Lick Cr.	0	300	300
Spawning Upstream of Weir	242	661	903
Spawning Downstream of Weir (.273% of post harvest return)	114	424	538
Total Natural Spawning (mainstem and tributaries)	356	1,085	1,441

Areas open to fishing by Nez Perce tribal members include the mainstem Imnaha River from the Snake River confluence upstream to 60 feet below the weir. The tribal fishery may occur from June 15 to August 5, or until the harvest number is achieved. Fishing gear permitted will include dip net, gaff, longbow, spear and hook and line. Final season structure will be set by tribal regulations.

Areas open to fishing by non-tribal members include the Imnaha River from the mouth of Imnaha River upstream to Summit Creek bridge. The non-tribal fishery may occur from June 24 through June 30 if necessary to achieve the harvest numbers, unless closed earlier due to exceeding wild catch quota. Fishing gear permitted would be hook and line (statewide salmon gear restrictions apply). Non-tribal fishers will target adipose clipped (hatchery) fish, and will release unclipped fish. Bag limit would be one adipose fin-clipped Chinook adult or jack per day, with two chinook per season. ODFW will close the fishery to non-tribal members if creel data analysis indicates a harvest of more than 89 marked hatchery fish, so as to reduce the potential for exceeding the take allowed in this proposal.

The Tribe and the State will each harvest 91 salmon, with all fish, jacks and adults alike, to count towards the harvest goal.

### *Impact of Tribal Management Plan on Escapement Objectives*

Consistent with the sliding scale management strategy resulting from U.S. v. Oregon Dispute Resolution, and described in the Section 10 Permit #1128, co-managers have determined that the anticipated level of adult escapement for 2005 is sufficient to meet natural spawner and hatchery broodstock goals as well as support a fishery harvest.

Implementation of a harvest of 182 fish (9 natural-origin and 173 hatchery-origin) is consistent with the sliding scale management strategy resulting from US v Oregon Dispute Resolution and the hatchery operations described in the Section 10 permit # 1128. The Parties have determined that the anticipated level of adult escapement for 2005 achieves hatchery broodstock goals and contributes fish toward natural spawner targets consistent with Table 3 and 4, as well as support a harvest.

In addition, the anticipated natural spawning escapement for 2005 is consistent with the Technical Recovery Team (TRT) preliminary draft guideline for population level abundance, productivity, spatial structure, and diversity for a viable population of 1,000 Snake River spring/summer chinook salmon in the Imnaha River. While this goal has not been included in previous plans impact assessment, it does provide a useful measurement tool that could be used to analyze harvest impacts on chinook salmon in years of poor or reduced abundance. The implementation of the fishery would thus result in 441 fish above the TRT preliminary guideline (1,000 fish) spawning naturally in the Imnaha River.

The total escapement to the Imnaha River for the time period 1979-2004 has ranged from 192 (1979) to 6,582 (2001). The natural spawners of hatchery-origin have increased during this time period from 0% up to 80% in 1999. The recent five-year (2000-2004) average for hatchery-origin spawning in the Imnaha River (both above and below the Gumboot weir) is 67% of overall natural spawning spring/summer chinook for this tributary. The hatchery and harvest management framework as detailed in Tables 3 and 4 has resulted in the incorporation of hatchery-origin chinook into the natural reproducing segment of the Snake River spring/summer

chinook migrating to the Imnaha River since 1985. The application of this management plan continues to rely on hatchery-origin fish to rebuild and recover this local Snake River spring/summer chinook population.

## **IMPACT OF TRIBAL MANAGEMENT PLAN**

The actual return of the total Snake River spring/summer chinook ESU is not typically quantified, and so an assessment of the level of impact on the listed population is an approximation. Although the count of natural-origin spring and summer chinook at Lower Granite Dam have been used as a measurement of return for the ESU (e.g. NMFS 2000), these counts include returns to the Clearwater River, which is not part of the ESU. Additionally, the return of the hatchery origin component of the ESU is often not included in the calculation. However, an estimate of return for the Snake River ESU is suggested in Table 7 such that the level of impact resulting from implementing the proposed plan can be assessed. As shown, the proposed Snake River Basin harvest of 182 salmon would, at most, affect up to 1.5% of the ESU.

**Table 7. 2005 Predicted Impact Level on Snake River spring/summer chinook ESU.**

<b>Grande Ronde</b> (Lostine, Catherine Cr. and Upper Grande Ronde) Ad clipped		
Age 3, 4, and 5	1,106	F
Total	1,106	F
Total Listed Hatchery Return	5,223	
Total ESU Return	12,385	G
Proposed Imnaha Harvest	182	
% Impact	1.5	
<b>Reference</b>		
A - From 2005 "IDFG modified method" (does not include jacks in the forecast)		
B - From Lefleur (2000) in TAC B.A. for Snake River Basin fisheries		
C - From 2005 ODFW updated in-season PIT tag estimates for Imnaha River		
D - From WDFW 2005 projected return to Tucannon River (scaled down to 37.4% of original forecast)		
E - From IDFG 2005 Forecasts (scaled down to 37.4% of original forecast)		
F - From 2005 Grande Ronde and Imnaha BasinsAOP (scaled down to 37.4% of original forecast)		
G - TAC projection of wild spring & summer chinook @ LGR + listed hatchery return		
Age 3	23	D
Age 4 and Age 5	135	
Total	158	D
<b>Sawtooth</b> (Adipose clipped & CWT marked)		
Age 3	223	E
Age 4	837	E
Age 5	101	E
Total	1,161	
<b>Pahsimeroi</b> (Adipose clipped & CWT marked)		
Age 3	116	E
Age 4	349	E
Age 5	558	E
Total	1,022	
<b>South Fork Salmon</b> (LV/RV clipped & CWT marked)		
Age 4 and Age 5	51	E
Total	51	

For harvest impact analysis and fishery planning purposes, the Nez Perce Tribe will continue to utilize the numbers, as determined by the Idaho Department of Fish and Game (IDFG) modified forecast methods that has been agreed to by TAC (Forecast section of Table 7). It should be noted that this forecast method does not include jacks, while the total listed hatchery return section of the table incorporates jacks into the anticipated return. This Plan uses a prediction of 28,000 spring and summer chinook to the Lower Granite Dam. The Imnaha River was revised using ODFW evaluation method (see Section 1.1.6 above). The Tribe updated the expected returns to the Tucannon River, Sawtooth River, Pahsimeroi River, South Fork Salmon River, and the Grande Ronde River system, based on the most recent runsize information (reduction of 37.4% of preseason return estimate of Snake River spring/summer chinook to Bonneville Dam). Therefore, the total expected Snake River spring/summer chinook ESU return is a conservative estimate, as is also the expected harvest impact. The Tribe and ODFW are continually reviewing the spring/summer chinook run information for the Imnaha River.

This fishery harvest and hatchery management plan does not appreciably reduce the likelihood of survival and recovery of the Snake River spring/summer chinook ESU. Other sources of mortality that harvest salmon throughout the salmon's lifecycle, which have no federally-reserved treaty rights or priority, have been permitted by NMFS (now NOAA Fisheries). For example, NMFS' Biological Opinion on operation of the Federal Columbia River Power System (NMFS, 2000), allows the harvest of 43% of the downstream migrating Snake River spring/summer chinook ESU occurring in the hydrosystem. An additional 18% of the returning salmon are allowed to be harvested as a result of upriver passage mortality associated with the hydrosystem. (NMFS, 2000). Detailed discussion on allowable mortalities occurring through the fishes' lifecycle are presented in the Biological Assessment on Columbia Basin Tribal Treaty fisheries (Speaks 2000).

Further, an assessment within the Imnaha River itself also shows that impact of the proposed harvest to be minimal. Because actions would be contained within the Imnaha River, the recovery or likelihood of survival of the entire ESU would not be affected. After harvest, the number of fish spawning in the Imnaha River (1,441 salmon) will be slightly greater than the 1,421 natural spawning escapement observed in 2004.

## **MONITORING AND EVALUATION**

In-season checks will be used to evaluate the progress of the returns of Snake River spring and summer chinook salmon over the mainstem dams to each subbasin. If the actual returns are less than the preseason projections, co-managers will reduce harvest goals or may close the fisheries.

Mandatory reporting, reporting stations, and creel census monitoring may also be utilized to monitor and evaluate fishing effort.

## **ENFORCEMENT**

Conservation enforcement officers will conduct catch monitoring and enforcement of fisheries.

## **RESTRICTIONS ON RESIDENT AND ANADROMOUS SPECIES**

Regulations regarding harvest of other species (bull trout, steelhead) will not be affected by this proposal.

## **CONSISTENCY WITH PLANS AND CONDITIONS ESTABLISHED WITHIN COURT PROCEEDINGS**

The parties to U.S. v. Oregon are under a court order obligating them to “exercise their sovereign powers in a coordinated and systematic manner in order to protect, rebuild, and enhance upper Columbia River fish runs while providing harvests for both treaty Indian and non-Indian fisheries.” Proposed harvest for the duration of this Plan may change in-season, based on updated return expectations and consistent with the harvest management guidelines established in this Plan.

## **CONCLUSION**

Implementation of this Tribal Management Plan for hatchery management and harvest is consistent with the Nez Perce Tribe’s legally enforceable treaty-reserved fishing rights and with the Secretary’s trust responsibilities to the Nez Perce Tribe. The Tribal Management Plan is also consistent with the existing and ongoing federal court proceeding in United States v. Oregon. Despite the increased level of harvest as proposed, the above analysis illustrates that implementation of this plan will not appreciably reduce the likelihood of survival and recovery of listed Snake River spring/summer chinook salmon.

This Plan allows for the natural spawning of approximately 1,441 salmon, which is anticipated to be the sixth largest natural spawner escapement ever recorded for the Imnaha River. This Management Plan builds on the success of the spring chinook returns to the Imnaha River basin, and continues the existing hatchery management plan reached in United States v. Oregon dispute resolution and agreed to by the co-managers.

## **REFERENCES**

Ashe, B., K. Concannon, D. Johnson, R. Zollman, D. Bryson, and G. Alley. 2000. Northeast Oregon hatchery spring chinook master plan. DOE/BP-3267. Bonneville Power Administration, Portland, Oregon.

Calica, C. 2002. Biological Assessment of Impacts on the Proposed Nez Perce 2002 Fisheries in the Snake River Basin. April 16, 2002.

Picard, D. 2005. Biological Assessment of Impacts on the Proposed Nez Perce 2002 Fisheries in the Snake River Basin. May 27, 2005.

Idaho Department of Fish and Game. 2003. Spring Chinook salmon projections on rack returns, 2003.

Idaho Department of Fish and Game. 2005. Spring Chinook salmon projections on rack returns, 2005.

LeFleur, C. 2000. Biological Assessment of Impacts of Proposed Fisheries in the Snake River Basin on Snake River Salmon and Steelhead Listed Under the Endangered Species Act. May 5, 2000.

National Marine Fisheries Service (NMFS). 1995. Proposed Recovery Plan for Snake River salmon. U.S. Department of Commerce. National Oceanic and Atmospheric Administration. March 1995.

NMFS. 2000. Biological Opinion. Impacts of treaty Indian and non-Indian fisheries in the Snake River Basin in year 2000, on salmon and steelhead listed in the Endangered Species Act. June 30, 2000.

NMFS. 2000. Biological Opinion. Reinitiation of Consultation on Operation of the Federal Columbia River Power System, Including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin. December 21, 2000.

NMFS. 2002. Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia Basin. April 4, 2002.

NMFS. 2002. Tribal Resource Management Plan 4(d) Rule Evaluation and Recommended Determination. August 1, 2002.

Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, and Oregon Department of Fish and Wildlife. 1990. Imnaha River Subbasin Salmon and Steelhead Production Plan. Columbia Basin Fish and Wildlife Authority, Portland, Oregon.

Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Indian Reservation, and the Confederation of Tribes and Bands of the Yakama Indian Nation. 1995. Anadromous Fish Restoration Plan: Wy-Kan-Ush-Mi-Wa-Kish-Wit: Spirit of the Salmon. Volumes I and II. Columbia River Inter-Tribal Fish Commission, Portland, Oregon.

Oregon Department of Fish and Wildlife (ODFW). 1998. Application for a permit for scientific research and to enhance the propagation or survival of Imnaha River chinook salmon *Oncorhynchus tshawytscha* under the Endangered Species Act of 1973. Oregon Department of Fish and Wildlife, LaGrande, Oregon.

ODFW. 2001. Attachment A. Proposed sport fishery for hatchery spring Chinook in the Imnaha River, 2001.

ODFW et al. 2003. Draft Lower Snake River Fish and Wildlife Compensation Plan Grande Ronde and Imnaha Basins Annual Operation Plan. January 30, 2003.

ODFW. 2005. 2005 Imnaha River Hatchery Spring Chinook Sport Fishery Proposal. Oregon Department of Fish and Wildlife, LaGrande, Oregon. June 2005.



ODFW et al. 2005. Draft Lower Snake River Fish and Wildlife Compensation Plan Grande Ronde and Imnaha Basins Annual Operation Plan. February 18, 2005.

Parker, S. 1997. Memorandum regarding Imnaha spring chinook escapement estimates. December 19, 1997. ODFW, LaGrande, Oregon.

Speaks, S. 2000. Letter to Donna Darm, NMFS re Consultation concerning impacts of proposed 2001 Treaty Indian fisheries (January 1 – July 31, 2001) in the Columbia River Basin on salmon species listed under the ESA. December, 2000. W/Attached Biological Assessment.

Speaks, S. 2000. Letter to Donna Darm, NMFS re Consultation concerning impacts of proposed 2001 Treaty Indian fisheries (January 1 – July 31, 2001) in the Columbia River Basin on salmon species listed under the ESA. December, 2000. W/Attached Biological Assessment.

U.S. Army Corps of Engineers (USACE). 1975. Lower Snake River fish and wildlife compensation plan. USACE Special Report, Walla Walla, Washington.

Waples, R.S. and six others. 1993. A genetic monitoring and evaluation program for supplemented populations of salmon and steelhead in the Snake River basin. Annual report of research to Bonneville Power, Project Number 89-096. Bonneville Power Administration, Portland, Oregon.